

[54] **SELF-LOCKING TAMPERPROOF CONTAINER**

[75] Inventors: **Robert A. Bamburg; Farris N. Duncan**, both of West Monroe; **Roger M. Floyd**, Monroe, all of La.

[73] Assignee: **Olinkraft, Inc.**, West Monroe, La.

[22] Filed: **May 17, 1972**

[21] Appl. No.: **253,998**

[52] U.S. Cl. **229/45, 229/33, 229/36, 229/DIG. 2**

[51] Int. Cl. **B65d 5/30, B65d 45/00**

[58] Field of Search **229/33, 36, 45, DIG. 2**

[56] **References Cited**
UNITED STATES PATENTS

1,918,887	7/1933	Ancira	229/36
2,464,904	3/1949	Tomarim	229/36 X
3,023,945	3/1962	Layne, Sr.	229/36
3,510,047	5/1970	Pascus et al.	229/36
3,543,995	12/1970	Wilson	229/36
R19,180	5/1934	Boeye	229/DIG. 2

Primary Examiner—William I. Price

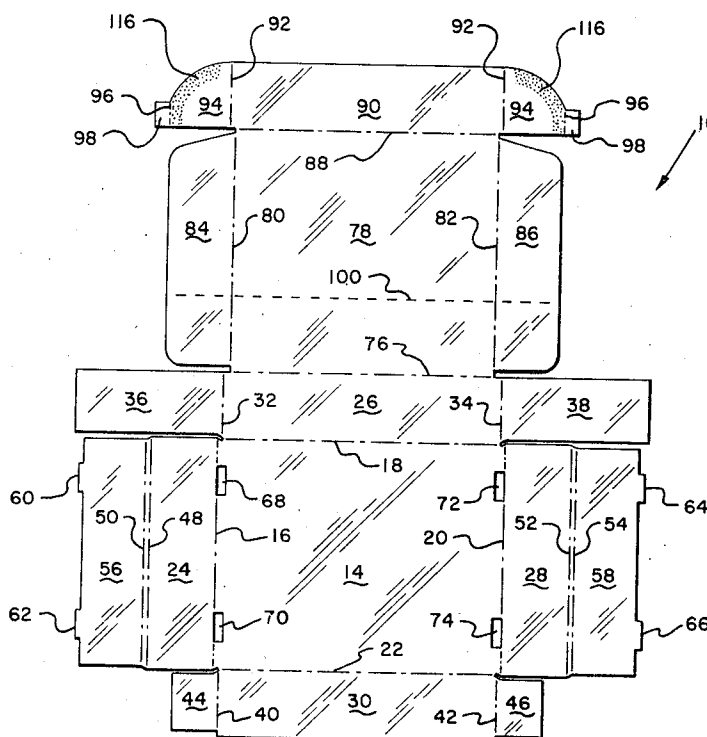
Assistant Examiner—Bruce H. Bernstein

Attorney, Agent, or Firm—Norvell E. Von Behren; C. Emmett Pugh; Calvin J. Laiche

[57] **ABSTRACT**

A container having unique tamperproof properties, in that, after the container is filled, the lid of the container may be permanently locked in place so that it may not be removed without destroying the integrity of the container. In order to remove the lid of the container, it must either be physically torn from the container or cut open along a cut scoreline provided in the lid for that purpose and for easy removal of the contents of the container. As a result, the contents may not be tampered with by someone not authorized access to the container without the container visibly showing that tampering has occurred. The permanent locking of the lid to the container is accomplished by at least one locking flap which engages locking means formed on one of the sides of the container.

7 Claims, 7 Drawing Figures



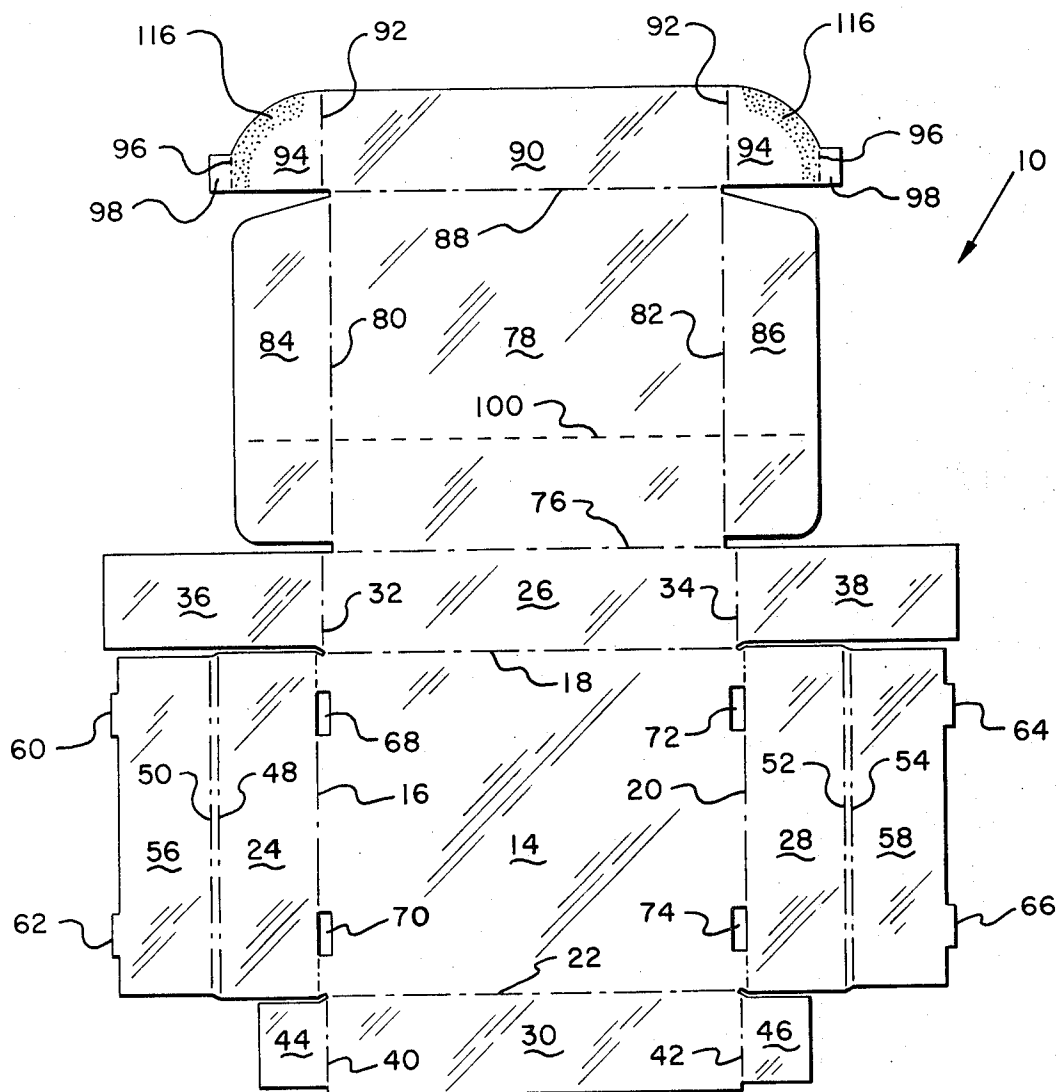


FIG. 1

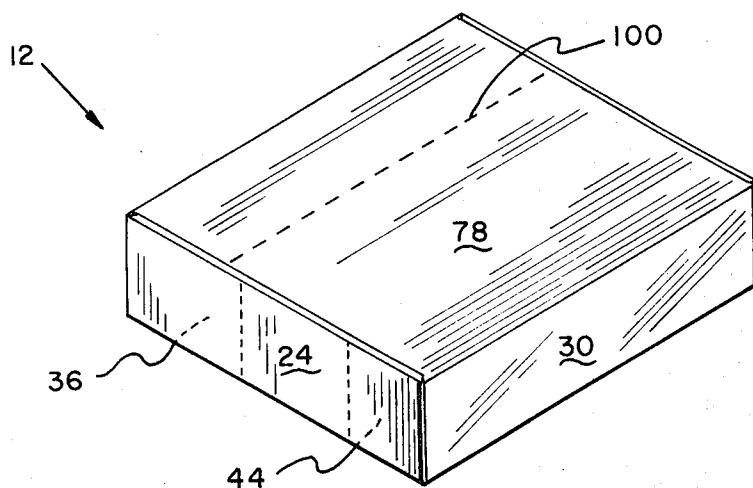


FIG. 2

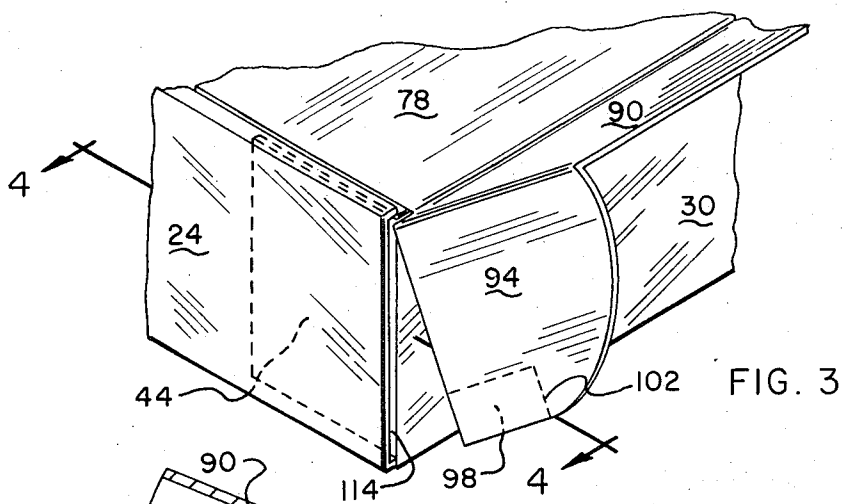


FIG. 3

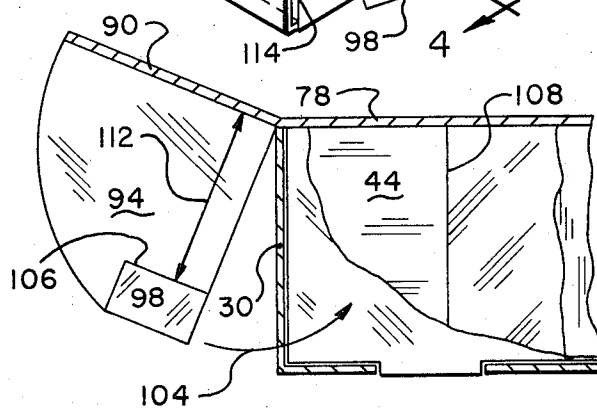


FIG. 4

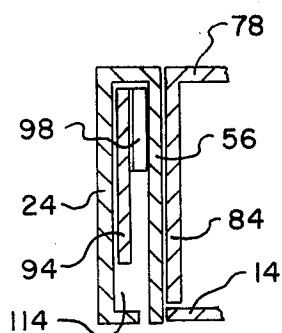


FIG. 6

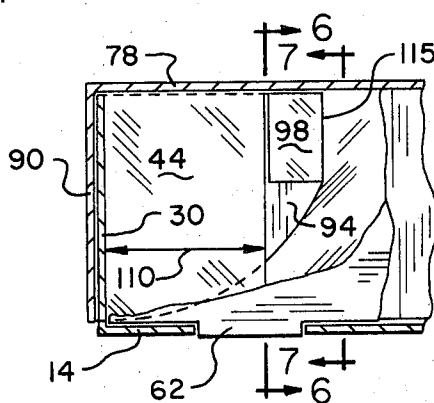


FIG. 5

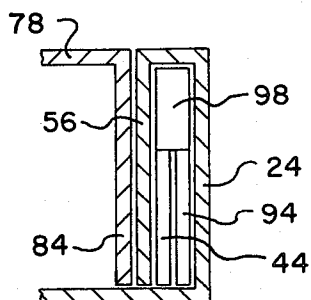


FIG. 7

SELF-LOCKING TAMPERPROOF CONTAINER

BACKGROUND OF THE INVENTION

This invention relates generally to a container and more particularly to a new and novel container in which the lid of the container may be permanently locked in place thereby rendering the contents of the container virtually tamperproof with a visible indication being given if the lid of the container has been removed by anyone other than the ultimate purchaser of the contents.

It is known in the art of packaging to provide containers which have an assortment of flaps and other locking means designed to hold the container in the shape of the shipping package after it has been folded from the flat paperboard blank. Such containers are designed for easy closing by the packer and for equally easy opening by the purchaser of the goods carried by the shipping container.

Such typical prior art containers for various applications are shown in the U.S. Pat. No. 1,143,103, issued June 15, 1915 to R. T. Cameron; the U.S. Pat. No. 2,319,018, issued May 11, 1943 to M. Ullman; the U.S. Pat. No. 2,548,001, issued Apr. 10, 1951 to S. T. Butterfill; the U.S. Pat. No. 2,610,782, issued Sept. 16, 1952 to R. McReary and the U.S. Pat. No. 3,310,219, issued Mar. 21, 1967 to J. J. Dlugopolski. All of these cited patents have various folded flaps, end panels, and/or locking means for locking the paperboard blank in the form of a package structure which is designed to carry a wide variety of articles. The term "locking means" is somewhat of a misnomer here and as used in the cited patents since the devices used do not actually lock the package together but only "retain" it in its packaged shape so that it can be easily opened by the purchaser of the contents of the package. It should become apparent from a review of these patents that the "locking means" are used solely to retain the package in its packaged shape so that the contents of the package will not be displaced from the package or the package will not fall apart during transportation of the package and the contents from the store to the home of the purchaser. In addition it is well known that the purchaser of consumer goods does not enjoy having to physically tear a package apart in order to remove the contents thereof but he expects the package to be easily opened at his convenience.

In order to insure that the package retains its shape and retains the contents in the package during the transportation to the consumer's home, there have been many variations attempted in the design to the package to insure that these conditions are obtained. One such modification in the package is shown in the U.S. Pat. No. 3,291,367, issued Dec. 13, 1966 to E. H. Carter wherein a plurality of tabs 40 are provided on the flaps 38 to "lock" the lid or top panel 20 on the box. The tabs 40 engage the slots 68 and 70 to give the lid a semi-permanent "locked" position. Such a structure is commonly used in today's marketplace for boxes designed to handle pastries, cakes and also somewhat larger boxes are designed to handle clothing and apparel. From a review of the patent and from a knowledge of that the paperboard carton is deformable, it should become apparent that the box in the cited patent may also be easily opened by the ultimate consumer and, as such, could also be easily opened and the

contents tampered with by someone other than the consumer.

Referring now to the U.S. Pat. No. 3,361,323, issued Jan. 2, 1968 to V. A. Adams et al there is shown an attempt to make a structure in which parts of the structure are actually locked in place. In the cited patent the end panel 15 or bottom of the hatbox is permanently fastened to the carton body 11 by means of the plurality of tabs 115 which are designed to engage in mating slots 56 formed in the bottom of the hatbox. This solution to the problem while making the bottom of the hatbox somewhat permanently fastened to the sides could not be used for the top of the hatbox since such a permanent top, while rendering the contents of the hatbox virtually tamperproof, would also require that the purchaser of the hat exert great forces on the hatbox in order to remove either the top or bottom of the box to get to the hat within the box.

From the above it should become apparent that many solutions have been attempted in order to solve the problem of retaining the contents within the container so that the purchaser of the contents can transport the contents and the container to its ultimate destination while still allowing the container to be easily opened. While the before cited solutions to this problem appear to have solved this problem, none of these references are directed to solving the problem which resulted in the design of the applicant's new and novel self-locking tamperproof container.

In the packaging of large quantities of food-stuffs such as shrimp, or the like, it is quite commonplace to package the foodstuff in packages of 3, 4 or 5 pound units for the large quantity buyer or for later repackaging by the food store into smaller quantities desirable for the smaller quantity buyer. When large quantities of shrimp are packaged thusly and stored in remote warehouses, it is commonplace for pilferage of the contents of the container or a portion of the contents of the container to take place. With standard prior art containers available on the market today, such pilferage is relatively easy since all that was required in order to steal a small quantity of shrimp, was to remove the lid of the container and take whatever shrimp the thief desired for his purposes. Then by simply redistributing the remaining shrimp in the box, the theft was not readily apparent since the possibility that the container would be reweighed at its final destination was very slim.

SUMMARY OF THE INVENTION

In order to overcome the problems inherent in the prior art cited containers there has been provided by the subject invention a new and novel self-locking tamperproof container which is virtually foolproof without leaving tell-tale traces on the container that the contents of the container have been disturbed. This new and novel tamperproof container has been designed by the use of new and novel locking flaps and tabs formed on the lid of the container with the locking tabs being designed to engage means formed on the container thereby rendering the lid completely locked to the sides of the container. When the lid is thusly locked it is virtually impossible to remove it from the container without tearing the lid and destroying the locking tabs. After the container is filled and shipped to the ultimate consumer it may be quickly opened by means of perforated cutlines across the top of the lid.

Accordingly it is an object of the invention to provide a new and novel tamperproof self-locking container which prevents unauthorized removal of the contents of the container.

Still another object of the invention is to provide a new and novel production blank that may be folded into a self-locking pilferproof and tamperproof container which provides visual indications when the contents of the container have been tampered with.

Yet another object of the invention is to provide a new and novel self-locking pilferproof and tamperproof container which prevents unauthorized tampering with the contents while at the same time providing means whereby the ultimate consumer of the contents may have ready access to the interior of the package.

These and other advantages of the invention will become apparent from a review of the drawing and from a reading of the preferred embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of the production blank of the subject invention prior to its being folded into the pilferproof and tamperproof container;

FIG. 2 is a perspective view of the pilferproof and tamperproof container of the subject invention folded and locked in position;

FIG. 3 is a partial perspective view of the corner of the pilferproof container showing the top panel flap prior to its insertion between the sides of the container;

FIG. 4 is a partial side sectional view taken along line 4—4 of FIG. 3 showing the top panel flap and the locking flap with its associated locking tab prior to being inserted between the sides of the container;

FIG. 5 is a side sectional view taken along line 4—4 of FIG. 3 showing the top panel flap after it has been folded down over the side of the container and showing the locking flap and locking tab locked in position within the container;

FIG. 6 is a side sectional view taken along line 6—6 of FIG. 5 showing the locking tab permanently locked against a side flap of the container; and

FIG. 7 is a side sectional view taken along line 7—7 of FIG. 5 showing another view of the locking tab permanently locked in place.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in general and in particular to FIGS. 1 and 2 of the drawing there is shown the production blank 10 which is folded by means well known in the art into the container 12 shown in FIG. 2. The blank 10 comprises a bottom panel 14 which is hinged by means of a plurality of scorelines 16, 18, 20 and 22 to a plurality of side panels 24, 26, 28 and 30. The side panel 26 has formed at each end thereof, by means of the scorelines 32 and 34 a plurality of side flaps 36 and 38. The side panel 30 also has formed, by means of the scorelines 40 and 42, a plurality of side flaps 44 and 46. The side flaps 44 and 46 are formed shorter than the side flaps 36 and 38 as will be described more in detail hereinafter.

The side panels 24 and 28 have formed thereon, by means of a pair of scorelines 48 and 50 and 52 and 54, an interior folddown panel 56 and 58 which is designed to fold down over the side panels 24 and 28, in juxtapo-

sition thereto, being locked to the bottom panel 14 by means of a plurality of tabs 60, 62, 64 and 66 which are designed to be received in a plurality of openings 68, 70, 72 and 74 formed in the bottom panel 14 of the container 12.

The side panel 26 also has formed thereon, by means of the scoreline 76 a top panel 78 which serves as the lid of the container 12 whenever the lid is locked in place on the container as will be described more fully hereinafter. The top panel 78 has formed thereon, by means of the scorelines 80 and 82, a plurality of top panel flaps 84 and 86 which are designed to be inserted within the container 12 when the top panel lid 78 is closed over the container.

The top panel 78 also has formed thereon, by means of the scoreline 88, a third top panel flap 90 which has formed on at least one end thereof, by means of the scoreline 92, a locking flap 94. In the embodiment shown in FIG. 1 the top panel flap 90 also has formed on the other end thereof, by means of a similar scoreline 92, a second locking flap 94. The locking flaps 94 have formed thereon, by means of the scorelines 96 a locking tab 98 which serves as a portion of the means for tightly locking top panel lid 78 on to the container 12 thereby rendering it pilferproof. The locking flaps 94 may be formed with a portion of their exposed edges crushed as shown by the shaded portion 116 of the flap 94, for the purpose which will be described more fully hereinafter. The top panel 78, as well as the top panel flaps 84 and 86, have formed therein a cut scoreline 100 for the purposes which will also be described more fully hereinafter.

While the folding sequence of folding the production blank 10 into the container 12 is well known to those versed in the art of containers and has been omitted from the drawing for purposes of brevity, there will now be described in brief detail how the production blank 10 is folded into the container 12 prior to locking the top panel lid 78 onto the container as illustrated in FIGS. 3—7. In setting up the container the sides 26 and 30 are folded upwardly with the side flaps 36, 38, 44 and 46 being folded into position along the scorelines 16 and 20. Thereupon the sides 24 and 28 are folded upwardly and the folddown panels 56 and 58 are folded over the side flaps 36, 38, 44 and 46 being locked into place by means of the plurality of tabs 60, 62, 64 and 66 into the openings 68, 70, 72 and 74 as is well known in the prior art. Thereupon the container is partially erected and the contents of the container may be placed on the bottom panel 14 in the container.

After the container has been completely filled, the top panel flaps 84 and 86 are folded upwardly and the top panel 78 is pivoted about the scoreline 76 with the top panel flaps 84 and 86 being positioned inside the container in juxtaposition to the folddown panels 56 and 58.

Referring now particularly to FIGS. 3 and 4 of the drawing there will be described in detail how the top panel 78 is permanently locked in place on the container 12 to render the container virtually tamperproof. After the top panel 78 has been folded down over the container 12 with the top panel flaps 84 and 86 being inserted in the container as before mentioned, the locking tabs 98 are folded inwardly into juxtaposition with the locking flaps 94 and as shown by the dashed line 102 in FIG. 3. Thereupon the locking flaps 94 are folded inwardly also into the position shown in FIG. 3

prior to their being inserted and locked in place in the container 12. As before mentioned, the side flaps 44 and 46 were inserted in between the sides 24 and 26 and the fold-down panels 56 and 58 also before mentioned the side flaps 44 and 46 are formed somewhat shorter than the side flaps 36 and 38 and are designed to receive the locking tab 98 whenever it is inserted between the side 24 and the fold-down panel 56 and between the side 28 and the fold-down panel 58.

In order to permanently lock the top panel lid 78 to the container 12, the top panel flap 90, along with the locking flaps 94 are rotated inwardly in the direction shown by the arrow 104 in FIG. 4 until the forward edge 106 of the locking tabs 98 contacts the edge 108 of the side flaps 44 and 46 as shown in FIG. 5 of the drawing. The length, shown by the arrow dimension 110 of the side flaps 44 and 46 is dimensioned to be in close proximity to the length, shown by the arrow distance 112 of the locking flaps 94 so that the locking tabs 98 will lock tightly against the side flaps 44 and 46.

As before mentioned the fold-down panels 56 and 58 were previously folded over the side flaps 36, 38, 44 and 46 and into position to form the sides of the container leaving a tight opening 114 into which can be inserted the locking flaps 94 with their associated locking tabs 98. As a result the locking tab 98 is held in its folded position in juxtaposition to the locking flap 94 thereby preventing its removal from the package without tearing the locking tabs 98 along the foldline as shown by the numeral 115 in FIG. 5. Of course if an unauthorized person desired to gain entry into the locked package he could physically force the top panel flap 90 open but such action would virtually destroy the locking tabs 98 by tearing them from the locking flaps 94 at the foldline shown by the numeral 115 thereby giving a visible indication of the tampering. As an aid to inserting the locking flap 94 and the locking tab 98 in the opening 114 it may be desired to crush a portion of the locking flap 94 as shown by the dotted area 116 in FIG. 1 so that the flaps fit better in the opening 114.

Since the container 12 has now been rendered virtually unopenable without destroying the integrity of the package and without having to exert a large force to do so, it is also desirable to also provide means for removing the contents of the container without having to destroy the integrity of the package by damaging the locking flaps. This means is provided by including in the top panel lid 78 the cut scoreline 100 along which the purchaser of the container may quickly run a sharp knife to allow the lid to be opened exposing the contents of the container. If this method is employed by the thief in the warehouse, then it becomes readily obvious to the ultimate purchaser of the container that it has been tampered with and he will refuse to accept the container when he purchases it from the supplier. By the same token if the thief in the warehouse attempted to remove the contents of the box by prying the top panel 90 from the box the evidence of his overt action would be the damaged locking tabs 98. If the thief were successful in prying the top panel flap 90 from the locking means and were successful in removing some of the contents of the box and attempted to insert the locking flaps 94 back into position within the opening 114, the box would still be unacceptable to the purchaser since the locking tabs 98 would have been torn from their position and the top panel flap 90 would be unable to be

locked in place on the container. By noticing this latter condition the receiver of the container again would refuse to accept the container.

From the above it can be seen that there has been provided by the subject invention a new and novel pilfer-proof and tamperproof container which, with the novel locking means, renders the container virtually unopenable without giving a visual indication that it has been opened during transportation from the packer to the ultimate consumer. The new and novel means herein provided allows the receiver of the package to make a quick visual inspection of the cut and scoreline 100 along with a quick check of the integrity of the top panel flap 90 and the locking tabs 98 to insure that the package has not been tampered with. While the new and novel means provided herein does not make the package completely theftproof, for the thief can still physically steal the entire package, it has been satisfactory in minimizing tampering with the contents of the package from the time the package leaves the packer until it is received at its ultimate destination.

It should be apparent that many changes may be made in the design of the package within the spirit and scope of the invention. For example the locking flaps 94 and the locking tabs 98 may be incorporated on either one or both of the top panel flaps 84 and 86 with minor modifications to provide the same virtually tamperproof package. From the above it should also be apparent that many other changes may be made in the package in the arrangement of the parts of the package without departing from the spirit and scope of the invention and the invention is not to be limited to the package shown and described as this package has been shown and described, by way of illustration only.

Having described the invention, we claim:

1. In a paperboard container blank of the type having a bottom, a plurality of side panels, hingedly attached to the bottom, and a top panel, hingedly attached to one of the side panels, the improvement comprising:

- a. the top panel having formed thereon a top panel flap for folding down over one of the sides of the container;
- b. the top panel flap having formed thereon at least one locking flap for insertion into the container;
- c. the locking flap having formed thereon at least one locking tab, said locking tab having formed thereon a contact edge; and
- d. at least one of the sides having formed thereon means for engaging the locking tab, said engaging means having formed thereon a contact edge substantially parallel with the contact edge formed on the locking tab, said locking tab and said engaging means dimensioned to lie in the same plane and to abut each other at said contact edges in an edge-on-edge relationship when folded, said engaging means and said locking tab and their respective contact edges co-operating to lock the locking flap within the container and to prevent its withdrawal without destroying the container thereby providing a container wherein the contents cannot be easily stolen.

2. The improvement as defined in claim 1 further comprising the top panel flap having formed thereon two locking flaps and each locking flap having formed thereon one locking tab.

3. The improvement as defined in claim 2 further comprising the top panel having formed therein means

7

for removing the contents of the container without unlocking the locking flaps, said means for removing serving as a positive identification that the contents of the container have been tampered with.

4. The improvement as defined in claim 1 wherein said locking flap has formed along at least a portion of the outer edges thereof and in proximity to said locking tab a crushed portion.

5. A self locking container blank comprising:

- a. a bottom panel;
- b. a plurality of side panels, hingedly attached to said bottom panel;
- c. a plurality of side panel flaps, hingedly attached to said side panels, at least one of said side panel flaps being shorter than the remaining side panel flaps and having formed thereon a contact edge;
- d. a top panel, hingedly attached to said bottom panel;
- e. at least one top panel flap, hingedly attached to said top panel; and

8

f. means, formed on said top panel flap, for locking said flap in engagement with the shorter side of the panel flaps whenever the blank is folded into a container, said locking means having formed thereon a contact edge formed in substantially the same direction as the contact edge formed on the shorter side flap, said shorter flap and said locking means dimensioned to lie in the same plane and to abut each other at said contact edges in an edge-to-edge relationship when folded.

6. The container blank as defined in claim 5 further comprising:

g. said locking means having formed thereon means for easily inserting said locking means in engagement with the shorter side of the panel flaps.

7. The container blank as defined in claim 6 further comprising said insertion means comprising a crushed edge formed on at least a portion of said locking means.

* * * * *

25

30

35

40

45

50

55

60

65