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J. F. BABINEAU

2,087,394

SELF SEALING AND SELF LOCKING CARTON AND BLANK FOR THE SAME

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2 Sheets-Sheet 1

FIG. 1

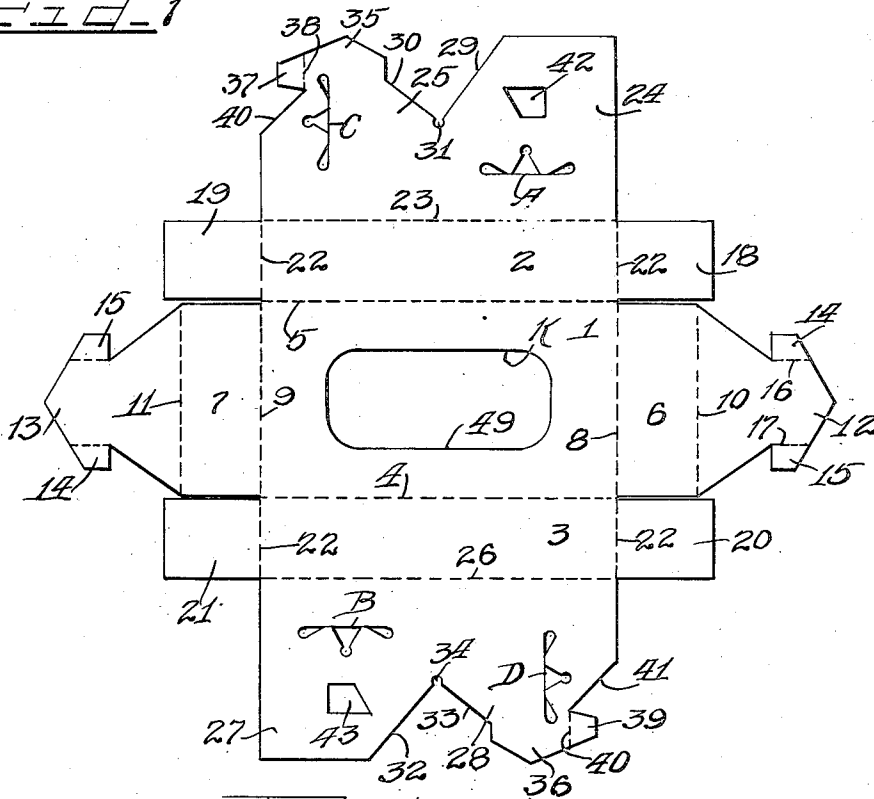
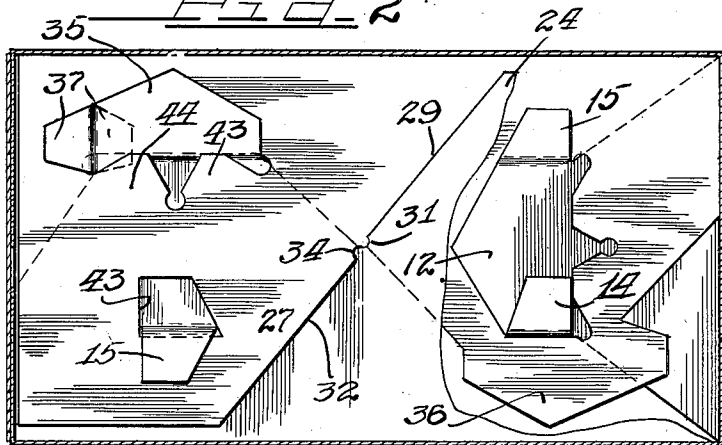


FIG. 2



INVENTOR
Joseph F. Babineau

BY Charles Willis ATTY.

July 20, 1937.

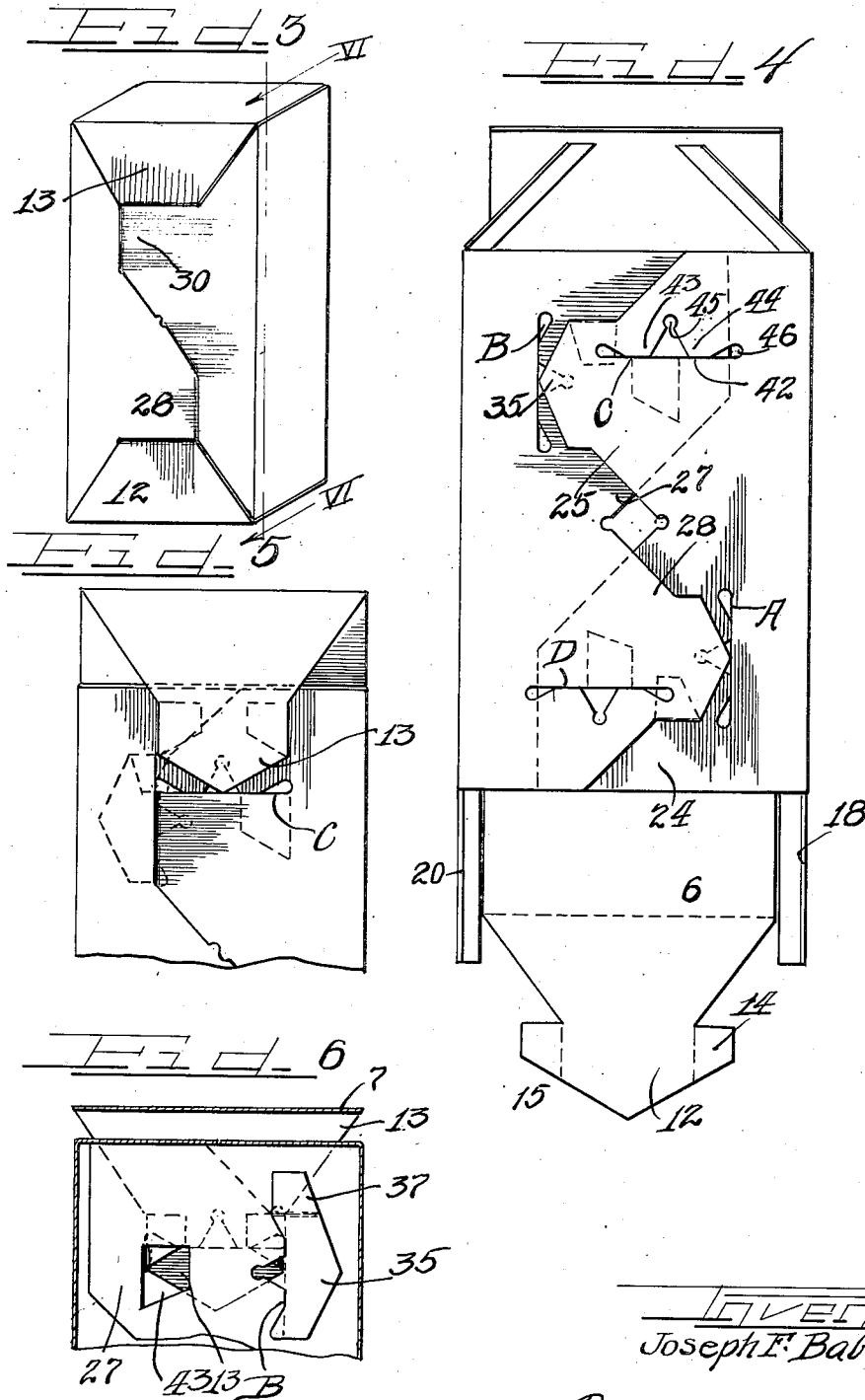
J. F. BABINEAU

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2 Sheets-Sheet 2



INVENTOR
Joseph F. Babineau.

BY Charles W. Hill ATTORNEY

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SELF-SEALING AND SELF-LOCKING CARTON AND BLANK FOR THE SAME

Joseph F. Babineau, Chicago, Ill.

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6 Claims. (Cl. 229—16)

The present invention relates to a self-sealing and self-locking carton and blank for the same, useful for packaging and displaying and protecting frangible articles, such for example as radio or like tubes, liquor bottles and the like, and is particularly applicable to a container so constructed as to provide, when folded, a closed interlocked six-sided box, to prevent unauthorized removal of the original content without leaving tell-tale evidence of such removal.

Many manufacturers and distributors of reputable products, package their products in containers which are identified with such manufacturers and distributors and which carry usually the proprietor's trade-mark, label, brand marks, and the like, of ownership.

There has been considerable bootlegging of inferior products in containers bearing trade-marks, brands, and labels of reputable manufacturers and distributors. This is especially true in the radio tube industry. Such containers or packages, in use at the present time, for the most part, are so constructed as to permit unauthorized opening of the packages and substitution of the original contents by other products of inferior kinds, and the resealing of such packages. This nefarious practice has resulted in bootleggers passing off inferior goods for reputable goods and thereby profiting, to the loss and damage of the manufacturers and distributors of such reputable products.

The present invention has for an object the provision of a one-piece box or container so constructed, assembled, self-sealed and self-interlocked, as to assure the sale of reputable merchandise in the original containers, and prevent fraudulent use of such containers without leaving tell-tale evidence of tampering with the containers.

Another object of the present invention is to provide a one-piece container or receptacle for packaging articles of merchandise so constructed as to prevent opening of the containers for substitution of their contents, without destruction of the containers, thus preventing fraudulent use of the original containers with inferior or other goods.

Another object of the present invention is to provide a one-piece self-locking and self-sealing container for packaging merchandise, so constructed as to be folded and interlocked as a closed six-sided box, incapable of being opened without leaving tell-tale evidence.

A further object of the present invention is to provide a one-piece container for packaging merchandise which when it is closed about its con-

tents, it becomes automatically sealed against opening without destruction of some parts of the container, thereby preventing fraudulent use of the container.

A still further object of the present invention is to provide a blank so scored and constructed as to be foldable as a closed six-sided package, with self-interlocking parts whereby, when the blank is set up and assembled, the package formed therefrom cannot be opened to free its contents without permanent destruction of some parts of the package.

A still further object of the present invention is to provide a novel blank for making a one-piece container, which may be manufactured in quantity lots, packed and shipped in flat condition, and quickly assembled at the place of use, and which requires a minimum amount of material and which provides a strong, durable and fool-proof container and at the same time is capable of manufacture in a variety of shapes and sizes for packaging articles of different kinds and shapes.

Generally speaking, the blank of the present invention is so fashioned and formed as to provide interlocking tongues and flaps of such construction that when the tongues are forced home through suitable slots in the flaps, and/or other portions of the blank, the flaps become automatically interlocked on the inside of the container. The blank is so constructed that when once fashioned as a closed six-sided box, the interlocking tongues and flaps cannot be disconnected for fraudulent opening, by insertion of wires or other picking tools through the slots of the container. The blank is interlocked and sealed in box form without glue, stitching, riveting or the like.

The above and further objects of the invention will be readily apparent from the following description and accompanying drawings.

The accompanying drawings illustrate several embodiments of the present invention, and the views thereof are as follows:

Fig. 1 is a plan view of a blank, constructed in accordance with the principles of the present invention, for packaging liquor bottles or other similar items, and which is self-sealing and self-interlocking when assembled about its contents.

Fig. 2 is a horizontal sectional view through a box or container fashioned from the blank of Fig. 1 and with the container turned over 180° after assembling. The left-hand portion of this figure illustrates interlocking of one of the lateral tongues and one of the end panel tongues, while the right-hand portion of the figure is partially

broken away to show the interlocking of one of the end panel tongues with a portion of the blank after assembly.

Fig. 3 is an isometric view of a container fashioned from the blank of Fig. 1 and showing the reverse side of the box when assembled.

Fig. 4 is a plan view showing the first step in assembling the blank of Fig. 1 into box form, and showing the relative overlapping relationship of certain of the parts of the blank.

Fig. 5 is a fragmental elevational view of the reverse side of the box, fashioned from the blank of Fig. 1, showing in dotted lines the engagement of one of the lateral tongues, and in full lines the tongue of one of the end panels immediately prior to its entry into its cooperating slot.

Fig. 6 is a fragmental vertical sectional view through a box of Fig. 3, and taken substantially in the plane indicated by line VI—VI of Fig. 3.

The drawings will now be explained.

The blank illustrated in Fig. 1 is formed from a single piece of suitable material, preferably fibrous material, such for example as paperboard or cardboard and is scored to form side wall panels 1, 2 and 3, distinguished by score lines 4 and 5. End panels 6 and 7, by means of score lines 8 and 9 respectively, are hingedly connected to one of the side wall panels, for example, the panel 1. Hingedly connected to the end panel walls 6 and 7 are tongues 12 and 13 respectively and foldable along score lines 10 and 11. The tongues 12 and 13 are tapered outwardly from the score lines 10 and 11 terminating in pointed ends. The sides of the tongues have tabs 14 and 15 foldable along score lines 16 and 17 so as to be folded against the tongues when the pointed ends thereof are inserted in their cooperating slots, as will later be explained.

Extending from the ends of the side panels 2 and 3 are end pieces 18 and 19, 20 and 21 foldable along individual score lines, indicated generally at 22.

Hingedly connected to the side wall panel 2, by a score line 23 is a lateral portion of the blank fashioned to provide a flap 24 and a tongue 25.

Extending from the other side wall panel 3 and hingedly connected thereto by a score line 26, are a flap 27 and a tongue 28. The flaps 24 and 27 are identical in formation, as are the tongues 25 and 28. However, in the formation of the blank, of Fig. 1, the tongue 28 is disposed to overlap the flap 24 while the tongue 25 is disposed to overlap the flap 27, when the blank is folded in rectangular shape, and as may be readily observed in Fig. 4. The adjacent margins of the tongues 24 and 25 are defined by inclined lines 29 and 30 which meet in a notch 31. Similarly the corresponding margins 32 and 33 of the flap 27 and tongue 28 terminate in a notch 34. A tongue 25 terminates in a pointed end 35 while the tongue 28 terminates in a similar point 36. Hingedly connected to the pointed end 35 of the tongue 25 is a tab 37 foldable along score line 38. A similar tab 39, foldable along score line 40 projects laterally from the pointed end 36 of the tongue 28. The margins of the tongues 25 and 28, adjacent the tabs 37 and 39, are inclined as at 40 and 41 thus providing notches whereby the tabs 37 and 39 constitute shoulders for hooking engagement with cooperating slots as will be later explained.

The flap 24 has a trapezoidal opening 42 in it, while the flap 27 has a similar trapezoidal opening 43. These openings 42 and 43 are of such shape and size to receive therein the tabs 15 of

the tongues 12 and 13, for self-locking and self-sealing engagement of the end wall tongues with the container.

The flaps 24 and 27 are provided each with an elongated slot of special construction. The slot A of tab 24 is cut in the flap with its length parallel to the score line 23. The slot B in the flap 27 is cut with its length parallel to the score line 26. In the tongue 25 is a similar slot C cut with its length perpendicular to the score line 23, while in the tongue 28 a similar slot D is cut with its length perpendicular to the score line 26.

The slots A, B, C and D, are of similar construction, and a description of one will suffice for all. A slot has a straight line 42 (Fig. 4) forming one margin of the same. The other margin of the slot is serrated having two teeth 43 and 44 which are separated from each other by a notch 45. The ends of the slot are curved in outline, as at 46 with the space of maximum opening greater than the distance between the extremities of the teeth 43 and 44 and the straight line 42, forming the other margin of the slot. The spaces between the teeth 43 and 44 and extremities of the slot, form notches into which certain shoulders of the tongues enter when the tongues are forced through their slots, for effecting interlocking of the parts. And furthermore the provision of the teeth 43 and 44 prevents insertion of wires or other picking tool from the outside of the box through the slots to surreptitiously attempt to unfasten the tongues from interlocked engagement.

Referring to Fig. 1 the slot A of flap 24 is adapted to be entered by the tongue 28, while the slot B of flap 27 is adapted to be entered by the tongue 25, when the blank is folded in rectangular shape. The slot D of the tongue 28 is entered by the tongue 12 of the end wall 6 while the slot C is entered by the tongue 13 of the end wall 7 when the parts are assembled.

Referring to Fig. 4 of the drawings, the blank is shown there partially assembled with the pointed end 35 of the tongue 25 overlying the flap 27 and the tongue 28 overlying the flap 24. This overlapping arrangement is made possible in the construction of the tongues and flaps, having the inclined adjacent margins 29 and 30 terminating in notches.

The first step in the formation of the blank of Fig. 1 into a container or box is to bend the side wall panels 1, 2, 3 at substantially right angles to one another along the respective score lines, then bend the flap 24 and tongue 25 along the score line 23, the flap 27 and the tongue 28 along its score line 26, and then bend the end wall panels 6 and 7 along the score lines 8 and 9. The next step is to arrange the tongues and flaps, which extend laterally from the blank, in overlapping and underlapping relationship as illustrated in Fig. 4. The next step is to bend inwardly against the under surfaces of the points of the tongues 25 and 28, their flaps 37 and 39 respectively. These tabs will have the appearance shown in dotted lines in Fig. 4. The pointed ends of the tongues are then forced through their respective slots A and B and forced home until the inclined margins of the tongues engage against the adjacent extremities of the slots. When the tongues have been thus forced home, the tabs 37 and 39 automatically unfold and occupy the position shown in Fig. 2. It will be observed that the shoulder between the inclined margin 40 of the tongue 25 and its tab 37 has become hooked in the adjacent

end of the flap that is hooked behind the adjacent tooth 44 of the flap margin. The tongue 28 is then inserted in its slot A in the same manner whereupon its tab 39 will unfold and hook with its slot A, as heretofore described. Thus far the blank has been assembled in rectangular shape with its ends open.

Observing Fig. 4 the lower end of the container is closed by bending the end pieces 18 and 20 of the side wall panels 2 and 3 respectively into position substantially perpendicular to the side walls. The tabs 14 and 15 of the pointed end 12 of the end panel tongue are then folded against the inner surface of the tongue, and the tongue 15 then inserted in its slot D and the tongue forced home through the slot. This closes the lower end of the box as pictured in Fig. 4. The bottle or other product to be packed in this container is then inserted through the upper end and the upper end closed by bending the end pieces 19 and 21 of the side wall panels 2 and 3 and closing the end wall 7 by inserting its tongue 13 through its slot C.

Fig. 2 illustrates the manner in which the tabs 14 and 15 of the end wall tongues unfold when these tongues are forced home through their slots. The tab 15 is shown as unfolded while the tab 14 is shown as still folded. Whenever the bottle or other article packed in the container thus formed, substantially fills the container, so that there is no room between the bottle and the container wall for the tabs 14 and 15 to unfold, nevertheless these tabs will sufficiently lock with the teeth 43 and 44 of its slot as there would then be double thickness of material lying within the interior surface of the wall thus formed and the tabs would hook over the extremities of the teeth and thus securely self-lock the ends of the container in closed position. Where a bottle is packed in such a container there will be sufficient room at the upper end of the container for the tabs 14 and 15 to unfold.

It will be observed that as the tab 14 of either end wall tongue unfolds it enters through the trapezoidal opening of its adjacent flap, as may be observed in Fig. 2 thus increasing the locking effect between the tongues and flaps of the container of the present invention.

Fig. 3 illustrates the appearance of the reverse face of the container or box so fashioned wherein it will be observed that the edges of the flaps and tongues, appear in somewhat S-shape when the box is assembled and closed.

Referring to Fig. 3 it will be readily observed that it would be impossible to insert a wire or other picking tool through any of the slots of the box and successfully disconnect the hooking engagement of the several tabs of the tongues with cooperating slot portions.

Referring to Fig. 5 the manner of inserting the tongue of either end wall in its cooperating slot, is clearly apparent. It will be observed, from this figure that the tongue of the end wall panel is inserted between the adjacent spaces of the lower lapping tongue and flap of the lateral portions of the blank, thus additionally preventing easy access of any picking tool to disconnect the tongues from interlocked engagement.

The blank of Fig. 1 has formed, preferably, in the side panel wall 1 a window opening K through which the contents of the container may be readily observed. This window may be covered with transparent material such as "Cellophane" or other suitable material. Such transparent cover is pasted against the inner face of the

side wall panel 1 so that it may not be readily removed without destruction. The provision of the window K enables a prospective purchaser of the packaged article to readily observe the label mark on the article without having to remove it from the container.

The slots are so cut that the entering tongues depress the teeth, which, after entry of the tongues tend to assume their planar positions and thus lockingly engage the tongues and tabs.

The invention has been described herein more or less precisely as to details, yet it is to be understood that the invention is not to be limited thereby, as changes may be made in the arrangement and proportion of parts, and equivalents may be substituted, without departing from the spirit and scope of the invention.

The invention is claimed as follows:

1. A single piece blank for forming a closed six-sided box, said blank having flaps with tongues on certain of said flaps, other flaps having elongated slots therein extending lengthwise of the box, the tongue flaps having elongated slots extending transversely of the box, and panels hinged to the box body and having tongues at their free ends, the tongues of the flaps being inserted through the first-mentioned slots from the outside to the inside of the box, the tongues of the end panels being inserted in the second-mentioned slots from the outside to the inside of the tongue flaps, and said tongues having means for hooking engagement with the slot margins inside of the box adjacent the slots and effective after the tongues have been forced home in the slots to prevent withdrawal of any tongue from its slot without permanent damage to the box.

2. A carton blank fashioned to provide side wall panels and end panels, flaps and tongues projecting laterally from the extreme side wall panels, tongues projecting from the ends of one side panel, said tongues and flaps having cooperating parts for interlocking engagement, the tongue at one end of said side panel interlocking with a flap of one extreme side panel and the tongue of the other extreme side panel, and the tongue at the other end of said one side panel interlocking with the tongue of said one extreme side panel and the flap of said other extreme side panel to provide a closed six-paneled box which cannot be opened without destruction of some part of the same.

3. A carton blank fashioned to provide side wall panels and end panels, flaps and tongues projecting laterally from the extreme side wall panels, tongues projecting from the ends of one side panel, said tongues and flaps having cooperating parts for interlocking engagement, the tongue at one end of said side panel interlocking with a flap of one extreme side panel and the tongue of the other extreme side panel, and the tongue at the other end of said one side panel interlocking with the tongue of said one extreme side panel and the flap of said other extreme side panel to provide a closed six-paneled box, said tongues having foldable tabs which are folded during assembly and which automatically unfold after assembly to prevent disconnection of any tongue from its interlocked engagement with its flap without destruction of some part of the box.

4. A carton blank fashioned to provide side wall panels and end panels, flaps and tongues projecting laterally from the extreme side wall panels, tongues projecting from the ends of cer-

tain of the side panels, said tongues and flaps having cooperating parts for interlocking engagement, one end tongue interlocking with a flap of one extreme side panel and another end tongue interlocking with a flap of the other extreme side panel to provide a closed six-paneled box which cannot be opened without destruction of some part of the same.

5 5. A carton blank fashioned to provide side wall panels and end panels, flaps and tongues projecting laterally from the extreme side wall panels, tongues projecting from the ends of certain of the side panels, said tongues and flaps having cooperating parts for interlocking engagement, one end tongue interlocking with a flap of one extreme side panel and another end tongue interlocking with a flap of the other extreme side panel to provide a closed six-paneled box which cannot be opened without destruction of some part of the same, said end tongues also interlocking with certain of the parts constituting the side wall panels to augment the interlocked effectiveness of the tongues with their flaps.

20 6. A carton blank fashioned from a single piece of material formed and scored to provide side wall panels and end wall panels with tongues extending endwise outwardly from the end panels and portions extending laterally outwardly from the extreme side wall panels, each

of said last mentioned portions including a tongue and a flap which are separated by a notch, said blank being foldable into substantially rectangular form with the notches in engagement and with each of the lateral tongues overlying a lateral flap of the other extreme side panel, said flaps being slotted and said tongues having pointed ends for entering said slots, the ends of said tongues having foldable tabs which are folded underneath said tongue ends for insertion of the tongue ends in the slots and which tabs automatically unfold after insertion to interlock the tongues and flaps, each of said lateral tongues being slotted to receive the tongues of the end panels, the tongues of the end panels having foldable tabs which are folded underneath the said tongue ends for insertion of the tongue ends in slots in said lateral tongues and which automatically unfold after insertion to interlock the end wall tongues with the lateral tongues, each of said lateral flaps having openings into which certain of the tabs of the end panel tongues enter when unfolded to effect interlock between said end panel tongues and said flaps to thereby provide a self-locking six-sided container which cannot be opened without destruction of some part of the carton or container so provided.

JOSEPH F. BABINEAU.