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CARTON FOR ICE CREAM OR THE LIKE

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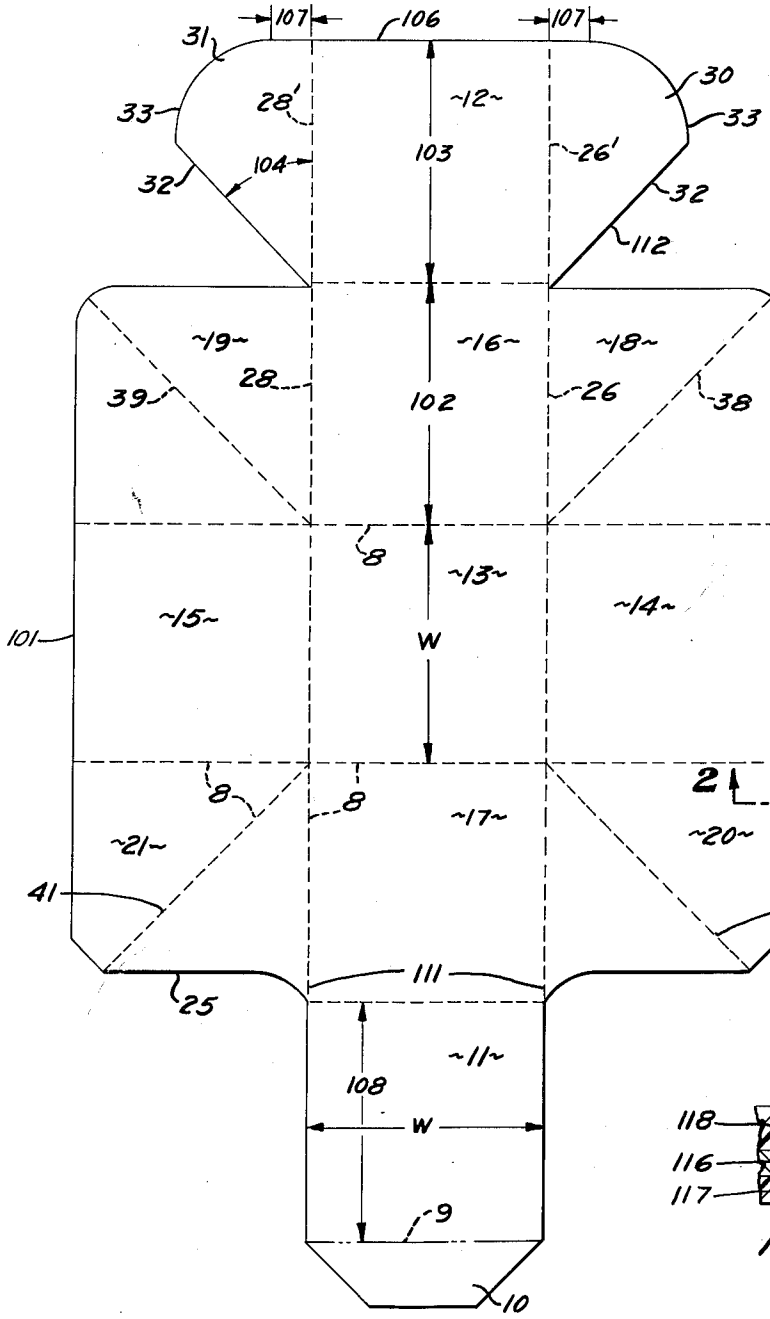


FIG. 1.

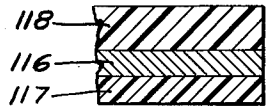


FIG. 2.

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CARTON FOR ICE CREAM OR THE LIKE

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This invention relates to a carton or container, and to a carton blank from which the container is designed to be formed. More particularly, the carton and blank constitute an improvement over the carton and carton blank disclosed in U.S. Patent 2,443,530, S. H. Berch, issued June 15, 1948.

It is an object of this invention to provide improvements in the carton disclosed in said Patent 2,443,530, such that the carton will remain closed more firmly and will be sealed more securely against leakage.

In accordance with these and other objects which will become apparent hereinafter, preferred forms of the present invention will now be described with reference to the accompanying drawing wherein:

FIG. 1 is a plan view of the carton blank of the present invention, and

FIG. 2 is a greatly enlarged fragmentary cross-section, taken on line 2—2 in FIG. 1.

Referring to the drawing, the blank shown in FIG. 1 consists of a laminated sheet cut as shown and scored to define a series of walls and flaps. The dashed lines, for example 8, represent score lines all made from that side of the blank which becomes the outside of the carton when the blank is folded. The dot-dash line 9 is a perforated line to permit the tab 10 to be folded back a full 180 degrees and rest on top of the cover flap 11. The blank of FIG. 1 is folded into a carton in the manner shown and described in said Patent 2,443,530, to which reference is made for further understanding of the present invention. For ease of reference, the same reference numerals have been used in this specification as in said Patent 2,443,530 to refer to similar parts.

The sheet of material shown in FIG. 1 is cut and scored, as indicated, to define a bottom wall 13, a front wall 17, a back wall 16, a pair of side walls 14 and 15, corner gusset fields 18, 19, 20 and 21, the cover flap 11 joined to the front wall 17, and a top flap 12 joined to the back wall 16. As shown and described in said Patent 2,443,530, the gusset fields 18–21 are adapted to be folded so as to overlap the respective intermediate side walls 14 and 15. The exterior edge 25 of each gusset field agrees substantially in length with the exterior edge 101 of each side wall against which the fields are adapted to be folded, in the manner shown in said patent.

When the carton blank of FIG. 1 is folded and formed into a container as illustrated in said patent, the cover flap 11 covers the compartment formed by the carton and the tab 10 is folded back at perforated line 9 through 180° to lie atop the cover 11. The tab 10 may be easily grasped by the fingers to peel the cover 11 back away from the ice cream or other contents of the carton. The top flap 12 overlies the cover flap 11 and the tangs 30 and 31 slip into the pockets formed by the gusset fields 18–21 to hold the container closed.

The improvement in the present invention over the carton disclosed in said Patent 2,443,530 is as follows:

Each of the walls 13, 14, 15, 16 and 17, as well as the flaps 11 and 12 has a width W. Furthermore, each of the walls 13–17 is substantially square, being generally W x W in dimension. The back wall 16, however, has a length 102 (which becomes the height when the blank is formed into the carton or container) which is slightly greater than W and lies in the critical range between 1.012W and 1.020W, being preferably 1.017W. The top flap 12 likewise has a length 103 which lies within the same critical range, namely 1.012W to 1.020W, preferably being approximately 1.017W.

The angle 104 between the diagonal edge 32 of each of the tangs 31 and 30, and the score line 28' defining the separation between the top flap 12 and the corresponding tang 31, should be, for maximum closing efficiency, less than 45°, and lies in the critical range between 35° and 44°, preferably being approximately 40°. The forward edge of each tang 30–31 is a straight edge aligned with the forward edge 106 of the top flap 12 and extends away at each side from the score lines 26' and 28', respectively, for a distance shown at 107. This distance lies in the critical range from .12W to .19W and is preferably approximately .17W. The edge of the tang then curves arcuately around, as shown at 33, to join the diagonal edge 32 and then proceeds to the corner of the gusset fields 18 and 19, respectively. The cover flap 11 has a length 108, which is somewhat less than W, being in this instance about .98W.

The critical dimensions described hereinbefore contribute to produce a carton which has improved closing qualities over that of Patent 2,443,530.

The shortening of the cover flap 11 to a dimension 108 less than W, and a fortiori less than the length 103 of the top flap 12, has the following advantages. When the tab 10 is folded back to rest on the top of the cover flap 11, it creates an added thickness at that point beneath the top flap 12. Furthermore, the score line 8 between the top flap 12 and the back wall 16 is done from the outside surface of the carton blanks. Thus there is a ridge protruding toward the inside, which occupies some of the room that might otherwise be occupied by the forward edge of the cover flap 11. Also, the perforation 9 is likewise from the outside of the carton, and this produces a little fuzz on the under surface when the tab 10 is folded backward. All of these factors make it desirable that there be a small clearance between the end of the cover flap 11 and the upper edge of the back wall 16 when the carton is formed. This virtually eliminates any tendency for the cover flap to force the top flap up, and thereby tend to open the carton.

Making the height 102 of the back wall 16 slightly greater than W, as explained hereinbefore, has the following advantages: In the first place, it gives more clearance for the folding back of the tab 10, discussed hereinbefore. More importantly, it provides a slight downward angle from the back of the top flap 12 to the front edge 105 which, aided by the increased length 103 of the top flap 12, drives the tangs 30 and 31 into the gusset pockets with greater binding action at the front edges of the tangs along the lengths denoted 107 in FIG. 1. The action may be readily seen by reference to FIG. 5 of the the above mentioned Patent 2,443,530. The straight edges 107 of the tangs 30 and 31 produce a binding action of the tangs against the interior corners of the formed

carton at score lines **111**. This binding is enhanced by a wedging action between the edge **107** and the edge **112** where the tang nests within the gusset pocket at the fold **40**.

The above described downward angle of the top flap **112**, enhancing as it does the binding of the tangs within the gusset pockets, produces the unique result that any upward force exerted on the top flap from underneath by the tab **10** actually tends to drive the tangs **30** and **31** deeper and more firmly into their gusset pockets. If the cover flap **11** were made too short, i.e., the dimension **103** too small, this lifting action would be shifted so far toward the front edge **106** of the top flap **12** that the action would be reversed and the upward pressure from the cover flap **11** would tend to lift the top flap and pop the carton open. If the cover flap **11** were eliminated completely, there would be a tendency for the carton to leak.

Deviation of the tang angle **104** from the range given has the following disadvantages. If the angle is less than 35°, the tang diagonal at **112** fails to even engage the inner edge at **40** and the wedging of the tang in the pocket is lost. If the angle is 45° or more, there is a decrease in pressure of the wedging between the lines **112** and **40**, which pressure would either be distributed along the entire length of the diagonal **32** or would be shifted toward the arc **33**. In either event, there is a measurable decrease in the wedge binding of the tang in the gusset pocket.

The blank is preferably a three part laminate (FIG. 2) consisting of a center structural sheet **116** of material such as paper or aluminum foil, an inner moisture barrier **117** of material such as cellophane, and an outer coating **118** having bonding qualities, such as polyethylene. When the carton is formed, the polyethylene bonds to itself to form a well sealed container.

From the above, it will be seen that there has been described herein an improved closing structure for the carton of Patent 2,443,530 predicated on the critical dimensioning of the various parts of the carton blank, and an improved laminated structure.

While the instant invention has been shown and described herein in what is conceived to be the most practical and preferred embodiments, it is recognized that departures may be made therefrom within the scope of the invention, which is therefore not to be limited to the details disclosed herein but is to be afforded the full scope of the claims.

What is claimed is:

1. A carton blank adapted to be folded and formed into a carton for a brick of ice cream or the like comprising: a sheet of material scored to define a bottom wall, a front wall, a back wall, a pair of side walls, corner gusset fields adapted to be folded so as to overlap the side walls, the exterior edges of said gusset fields agreeing substantially in length with the exterior edge of the side walls against which the fields are adapted to be folded, a cover flap joined to said front wall and adapted to cover the compartment formed when the sheet is folded into a carton, a top flap joined to said back wall and adapted to overlie said cover flap, and tangs carried by said top flap and adapted to be inserted into folds formed by said gusset fields for holding the carton in closed position, each of said walls and flaps having substantially the same width W, each of said walls being substantially rectangular and, except for said back wall, being substantially square, said blank being characterized by: said back wall having a length (which becomes the height when formed into the carton) of between 1.012W and 1.020W, said top flap having a length of between 1.012W and 1.020W, said tangs having diagonal edges, the angle between each diagonal edge and the score line defining the separation between said top flap and said tang being between 35° and 44°, the forward edge of each tang constituting a straight edge aligned with the forward edge of said top flap and extending away from said last mentioned score line for a distance of from .12W to .19W and then curving arcuately around, at a radius from .3W to .5W, to join said diagonal edge.

2. A container for a brick of ice cream or the like comprising: a sheet of material scored and folded to define a bottom wall, a front wall, a back wall, a pair of side walls, folded gusset fields, one overlapping the other, and both overlapping the side walls, and disposed exteriorly of said side walls, the upper edges of said folded gusset fields agreeing substantially in length with the width of the side walls against which said fields are folded; a cover flap joined to said front wall and covering the compartment formed by the container, a top flap joined to said back wall and overlying said cover flap, and tangs carried by said top flap and inserted into folds of said gusset fields for holding the container in its closed position, each of said walls and flaps having substantially the same width W, each of said walls being substantially rectangular and, except for said back wall, being substantially square, characterized by: said back wall having a height approximately 1.017 W, said top flap having a length of approximately 1.017 W, said tangs having diagonal lower edges, the angle between each diagonal edge and the adjacent side edge of said top flap being approximately 40°, the forward edge of each of said tangs lying on linear extensions of the forward edge of said top flap, and extending linearly away from said adjacent side edges, respectively, a distance of approximately .17W, and then curving arcuately around at a radius of approximately .4W to join said diagonal edges.

3. A container for a brick of ice cream or the like, comprising: a sheet of material scored and folded to define a bottom wall, a front wall, a back wall, a pair of side walls, folded gusset fields, one overlapping the other, and both overlapping the side walls, and disposed exteriorly of said side walls, the upper edges of said folded gusset fields agreeing substantially in length with the width of the side walls against which said fields are folded, a cover flap joined to said front wall and covering the compartment formed by the container, a top flap joined to said back wall and overlying said cover flap, and tangs carried by said top flap and inserted into folds of said gusset fields for holding the container in its closed position, each of said walls and flaps having substantially the same width W, each of said walls being substantially rectangular and, except for said back wall, being substantially square, characterized by: said back wall having a height approximately 1.017W, said top flap having a length of approximately 1.017W, said tangs having diagonal lower edges, the angle between each diagonal edge and the adjacent side edge of said top flap being approximately 40 degrees, the forward edge of each of said tangs lying on linear extensions of the forward edge of said top flap, and extending linearly away from said adjacent side edges, respectively, a distance of approximately .17W, and then curving arcuately around at a radius of approximately .4W to join said diagonal edges, said sheet being laminated and formed of three layers, the inner layer being composed of a moisture barrier, the center layer being a structural sheet member, and the outer layer being a coating of a polyethylene plastic.

4. Container in accordance with claim 3 wherein said gusset fields are bonded together by the fusing of adjacent polyethylene coating layers to form a seal.

5. A container for a brick of ice cream or the like comprising: a sheet of material scored and folded to define a bottom wall, a front wall, a back wall, a pair of side walls, folded gusset fields, one overlapping the other, and both overlapping the side walls, and disposed exteriorly of said side walls, the upper edges of said folded gusset fields agreeing substantially in length with the width of the side walls against which said fields are folded; a cover flap joined to said front wall and covering the compartment formed by the container, a top flap joined to said

back wall and overlying said cover flap, and tangs carried by said top flap and inserted into folds of said gusset fields for holding the container in its closed position, each of said walls and flaps having substantially the same width W, each of said walls being substantially rectangular and, except for said back wall, being substantially square, characterized by: said back wall having a height between 1.012W and 1.020W, said top flap having a length between 1.012W and 1.020W, said tangs having diagonal lower edges, the angle between each diagonal edge and the adjacent side edge of said top flap being between 35° and 44°, the forward edge of each of said tangs lying on linear extensions of the forward edge of said top flap, and

extending linearly away from said adjacent side edges respectively, a distance of from .12W to .19W and then curving arcuately around at a radius of from .3W to .5W to join said diagonal edges.

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