March 3, 1942. B. J. DAVIDSON 2,275,134

CARTON

Filed Dec. 7, 1937 3 Sheets-Sheet 1

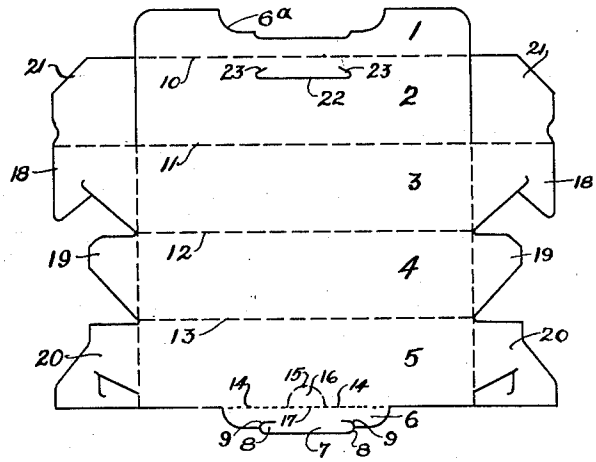

Fig. 1

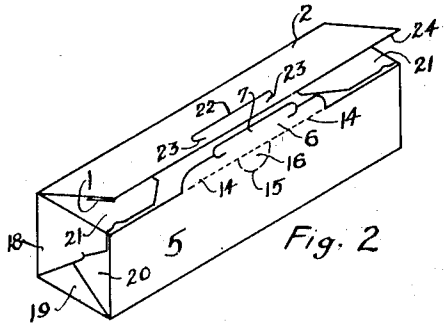

Fig. 2

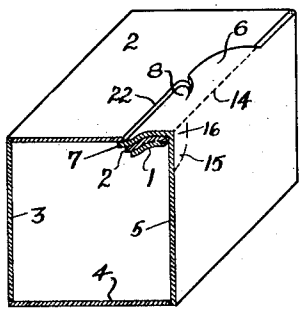

Fig. 3

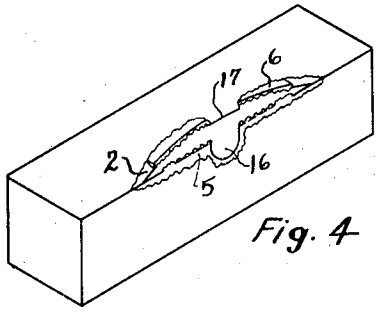

Fig. 4

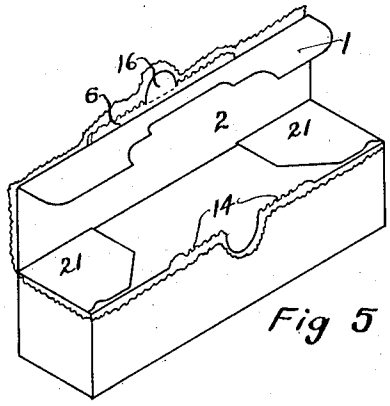

Fig 5

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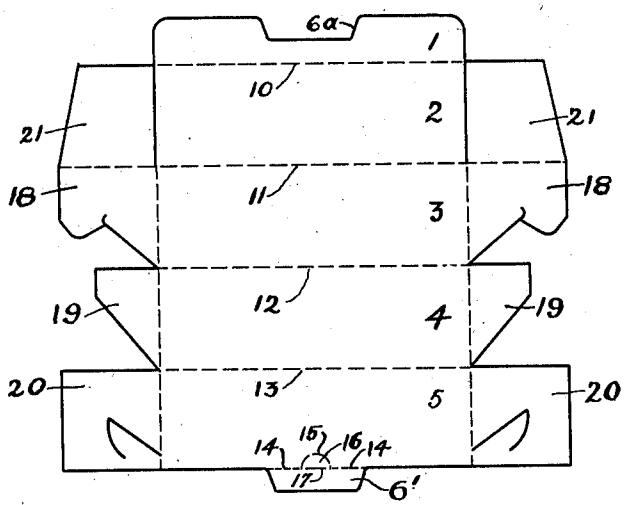

Fig. 6

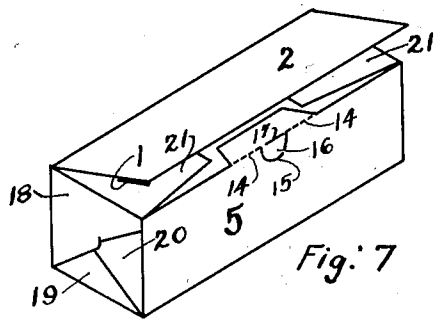

Fig. 7

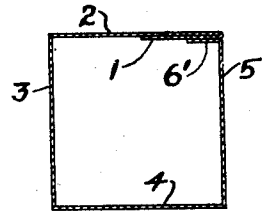

Fig. 8

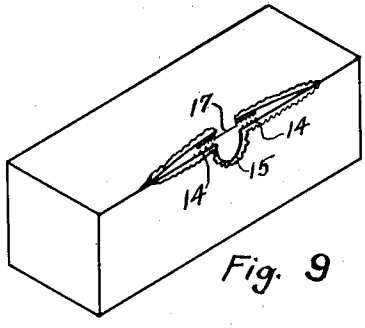

Fig. 9

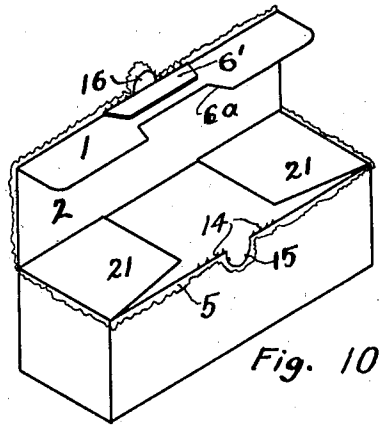

Fig. 10

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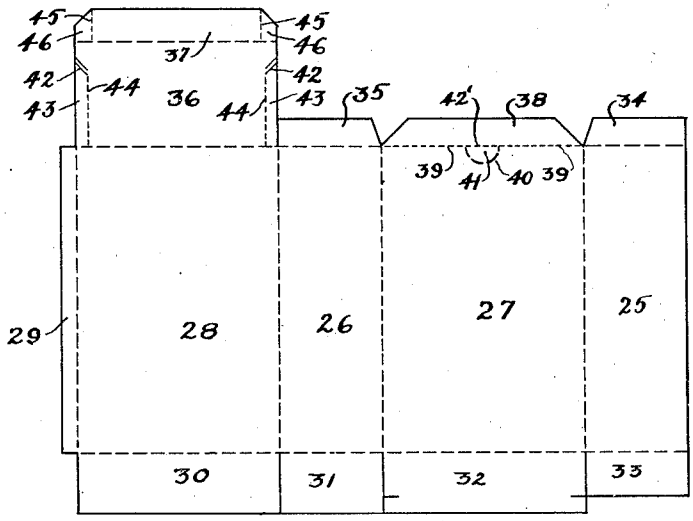

Fig. 11

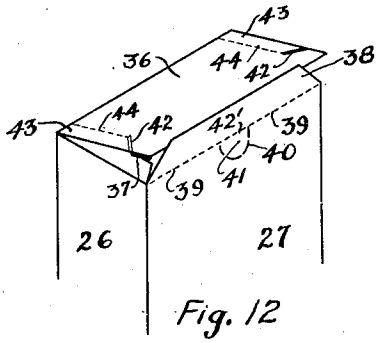

Fig. 12

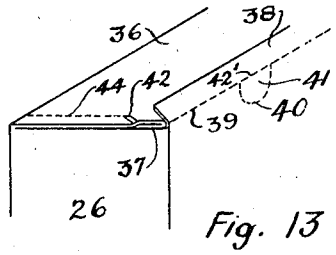

Fig. 13

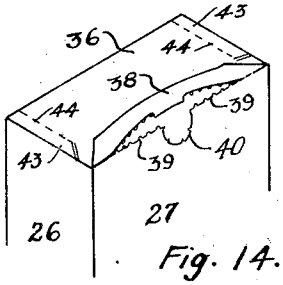

Fig. 14.

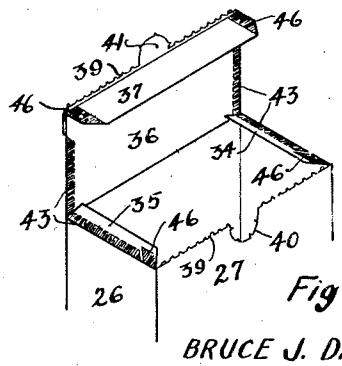

Fig. 15.

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Patented Mar. 3, 1942

2,275,134

UNITED STATES PATENT OFFICE

2,275,134

CARTON

Bruce J. Davidson, Manhasset, N. Y., assignor to National Biscuit Company, New York, N. Y., a corporation of New Jersey

Application December 7, 1937, Serial No. 178,457

8 Claims. (Cl. 229—51)

My invention relates to cartons and particularly to cartons that can be sealed tightly by the manufacturer when they are filled, yet can be easily and quickly opened by the purchaser without special tools and leave the carton so that it can be reclosed after part of its contents have been removed.

Easy opening and reclosable cartons as heretofore made, and as exemplified in the patents granted to me, Nos. 1,940,849 and 2,038,893, dated December 26, 1933, and April 28, 1936, respectively, have been very satisfactory but do possess this disadvantage, namely: that the perforated or weakened line must be broken by the thumb nail or other implement for its entire length across the front of the carton before it can be opened. The present invention embodies an entirely new and different principle of opening in that the opening or breaking of the carton is started at one point or localized spot only and then the rupture of the carton or cutting of the wrapper proceeds progressively to the ends as the lid is lifted. No specific tools are required and it is not necessary to break any part of a perforated or weakened line by the thumb nail. A weakened spot is provided adjacent the front top edge of the carton which breaks out when grasped between the thumb and forefinger and starts a fracture that progresses to the opposite ends as the lid is pulled open by the same grip of the thumb and forefinger. Or, stated in other words, the purchaser, in order to open the carton, merely grasps the front top corner of the carton at an indicated spot between his thumb and forefinger and then pulls up. This upward pull causes a fracture or tear, that started at the gripped point, to run progressively to the opposite ends of the carton so that the lid can be raised.

Another advantage and distinguishing improvement in the present invention is that the tuck or closing flap is turned in and lies against the underside of the cover when the carton is sealed instead of against the front wall. The turned edge then serves to cut or shear the wrapper (in case the carton is wrapped) when the cover is raised. With the tuck thus turned in, it overlies the end flaps of the carton so that the cover can be raised without interference from these end flaps, and the shearing of the wrapper or rupture of the carton will proceed to the ends uninterruptedly. When the carton is designed to be wrapped, a short weakened or tear line is provided adjacent the gripping spot which is readily broken, and serves merely to hold the carton together while it is passing through the wrapping machine and during shipment.

In the accompanying drawings, I have illustrated three embodiments or modifications of my invention, but of course it may be embodied in many other forms.

Fig. 1 shows a single piece blank from which a lock-type carton may be formed.

Fig. 2 shows the carton formed and nearly closed.

Fig. 3 is a cross section through a closed carton near its center showing how the tongue on the front flap interlocks with the cover.

Fig. 4 shows the carton that has been wrapped and its opening started.

Fig. 5 shows the carton fully opened.

Figs. 6, 7, 8, 9 and 10 are views similar to Figs. 1 to 5, respectively, of another form of carton and blank.

Fig. 11 shows a single piece blank for forming a sealed carton.

Fig. 12 shows the upper end of a carton just prior to the final sealing operation.

Fig. 13 shows the sealed top.

Fig. 14 shows the upper end partly opened.

Fig. 15 shows the carton fully opened.

Referring first to Fig. 1, I have illustrated a single piece blank from which a carton embodying my invention may be formed.

This blank has formed thereon in succession from top to bottom, a tuck 1, a cover or top 2, a rear wall 3, a bottom 4, a front wall 5, and a sealing flap 6. The sealing flap has a tongue 7, with locking tips 8, formed by incurved cuts 9.

The tuck, top, rear, bottom and front walls are separated by score lines 10, 11, 12 and 13, on which the material is folded to form the carton.

The sealing flap 6 is secured to the adjacent edge of the front panel 5 by a perforated or weakened line 14, the two sections of which are joined by a semi-circular cut line 15 which defines a thumb hold 16.

The two sections of the perforated line 14 are joined along the edge of the thumb tab by a line 17, which preferably is a score line but may be a perforated line. A score line is preferred to a perforated line so that the thumb hold 16 will remain attached to the sealing flap 6 when it is broken loose from the front wall 5.

The ends of the three walls of the carton are provided with end closing flaps, 18, 19 and 20 which, as shown in Fig. 1, are adapted to interlock to form the end of the carton, but these flaps may be glued together instead of locking if preferred.

The two end closing flaps 18 are provided with end flaps 21 which are turned in over the top of the carton when it is closed.

Fig. 2 shows the blank folded up to form a carton which has been filled and is ready for closing. It will be noted that the two end flaps 21 are turned in under the cover 2 and that the tuck 1 has been turned under the cover and lies against its under surface. This strengthens and stiffens the free or front edge of the cover so that it will not tear but will shear the paper wrapper when it is pulled up. The sealing flap 6 is still upstanding in this figure and as soon as the cover is turned down into closed position, the flap 6 will be turned down so that the tongue 7 will enter the slit 22 which is formed in the cover 2. The slit 22 has inwardly curved ends 23 which provide shoulders against which the tips 8 abut to prevent opening of the carton, as best shown in Fig. 3.

The carton shown in Figs. 1 to 5 is designed to be enclosed and sealed in a paper wrapper as shown in Figs. 4 and 5. The wrapper will have an imprint or other mark upon it indicating the location of the thumb hold 16 and when it is desired to open the carton the purchaser merely grasps the corner of the carton with his thumb against the thumb hold 16 and his index finger bearing on the wrapper above the sealing flap 6. The pressure of the thumb breaks out the piece 16 and the operator then grasps the top of the carton with his finger above it and his thumb extending through the opening where the piece 16 broke out and gripping the underside of the tuck 1. An upward pull on the front of the lid then causes the sealing flap 6 to break along the perforated line 14, the tear beginning at the center and extending toward the ends of the carton. The turned edge 24 of the cover, where the tuck 1 has been turned under, is strengthened and stiff enough to provide a cutting edge which tears or shears the paper wrapper along the edge of the carton, as shown in Fig. 4, where the operation of opening the carton has progressed about halfway.

Fig. 5 shows the carton completely opened, the ends of the cover section having cut the paper along the top edges of the end panels as clearly illustrated.

The cover can easily be raised in this manner because the tuck 1 is not held down in any way by the end flaps 21.

When the carton has been opened and part of its contents used, it can be reclosed by inserting the tuck 1 inside of the front wall 5.

In Fig. 6 I have shown a blank for forming the carton illustrated in Figs. 7 to 10.

This carton is similar to the one of Figs. 1 to 5 and the same reference numbers have been applied to the several parts. The principal difference is that the sealing flap 6' in Fig. 6 is glued to either the cover 2 or the underside of the tuck 1 instead of being secured by a tongue and slot construction. Preferably I glue the flap 6' to the underside of the tuck 1, as best shown in Fig. 8, because that leaves the outer surface of the carton smooth for wrapping. The carton of these figures is opened in the same manner as the carton shown in Figs. 1 to 5.

It will be noted in Figs. 1 to 10 that the sealing flap 6 or 6' is cut from the material of the tuck 1 of the next adjacent carton blank which leaves a recess 6a in the tuck. This is done merely to economize in material and is not an essential part of the invention.

While I have shown the cartons of Figs. 1 to 10 as enclosed in wrappers, this is done when it is desired to provide a tightly sealed carton but of course the carton can be used without the wrapper and the parts glued together when necessary or desirable.

Referring now to Fig. 11, I have shown another embodiment of my invention wherein the carton blank is formed with end panels 25, 26, a front wall 27, a rear wall 28, and a glue flap 29, the flap 29 being adapted to be glued to the free edge of the end panel 25 in forming the carton.

The lower ends of the four panels 25, 26, 27 and 28 are provided with flaps 30, 31, 32 and 33 for forming the bottom of the carton. I have shown these bottom flaps like those shown in my co-pending application, Ser. No. 89,206, filed July 6, 1936, on which Patent 2,124,868 has been granted, and per se this bottom closing means does not form part of the present invention.

The two ends of the carton have end flaps 34, 35 which are turned in over the top of the contents of the carton and the rear panel 28 has a cover 36 hinged to its upper edge, the cover having a tuck 37 attached to its free edge.

A sealing flap 38 is attached to the top of the front wall 27 by a perforated line 39, the two parts of which are joined by a curved cut line 40 to provide a thumb hold 41. Where the thumb hold joins the flap 38 the material preferably is scored, as indicated at 42', but this line may be perforated in some cases.

The tuck 37 is turned under into contact with the cover 36 and at the edges of the tuck the material of the cover is offset, as indicated at 42, so that at the edges the material of the cover and tuck will lie in the same plane on their undersides, as shown in Fig. 13. This is done so that the cover and tuck will form a tight joint with the end flaps 34, 35 when glued thereto.

The cover 36 has glue strips 43 defined along each edge by perforated or partly cut lines 44 and the under surface of the tuck 37 has similar lines 45 defining glue strips 46 thereon. When the carton is sealed these glue strips are secured by glue to the underlying end flaps 34, 35.

When the carton is finally closed and sealed, as shown in Fig. 13, the sealing flap 38 is glued to the upper surface of the cover 36.

To open the carton the operator grasps the corner with this thumb in contact with the thumb bold 41 and his index finger in contact with the upper face of the sealing flap 38. A slight squeeze is sufficient to break out the thumb hold 41 and the purchaser simply pulls up on the cover which causes the perforated line 39 to break outwardly from the center to the ends of the carton, as illustrated in Fig. 14, and a further lifting of the cover causes the material of the cover and tuck to split, leaving the under part of the glue strips 43 and 46 adhering to the end flaps 34, 35 as clearly shown in Fig. 15.

When it is desired to reclose the carton the tuck 37 is inserted inside of the front wall 27.

The cut or perforated lines 44, 45 are provided to insure that the material of the cover and tuck will split off along a straight line, which assures a neat opening of the carton. Where equipment is available for forming these lines, they will be continuous cuts that extend only part way through the material from the surfaces of the tuck and cover that are underneath when the carton is closed. But if this equipment is not available, the lines may be formed by tiny perfora-

tions spaced a short distance apart and extending all the way through the material.

It will be understood that the drawings and terms used herein are but illustrative and descriptive of the invention and not limitations thereon, and that the terms used to describe the carton, such as front, end, back, bottom, top, etc., are but relative and any side of the carton may be in any position relative to the carton as a whole.

Having thus described three forms in which my invention may be embodied, I claim all modifications and equivalents thereof that come within the scope of the following claims.

I claim:

1. A carton comprising front, rear, bottom and two end walls, a cover hinged to the rear wall and having a tuck secured to its opposite edge and folded into contact with the under face of the cover, a sealing flap attached to the top edge of the front wall and secured to the underside of said tuck.

2. A carton comprising front, rear, bottom and two end walls, a cover hinged to the rear wall and having a tuck secured to its opposite edge and folded into contact with the under face of the cover, a sealing flap attached to the top edge of the front wall and having a locking tongue extending through a slit in the said cover.

3. A carton comprising front, rear, bottom and two end walls, a cover hinged along its rear edge to the rear wall and having a tuck secured to its front edge, there being a slit in the cover between its front and rear edges, a sealing flap attached to the top edge of the front wall along a readily fracturable line and overlying said cover, said sealing flap at its edge opposite the fracturable line having a tongue extending through said slit in the cover.

4. A carton comprising front, rear, bottom and two end walls, a cover hinged along its rear edge to the rear wall and having a tuck secured to its front edge, there being a slit in the cover between its front and rear edges, a sealing flap attached to the top edge of the front wall along a readily fracturable line and overlying said cover, said sealing flap at its edge opposite the fracturable line having a tongue extending through said slit in the cover, said readily fracturable line comprising in part a curved line defining a thumb hold in said front wall.

5. A carton comprising front, rear, bottom and two end walls, a cover hinged to the rear wall and having a tuck secured to its opposite edge and folded into contact with the under face of the cover, a sealing flap attached to the top edge of the front wall and having a locking tongue extending through a slit in the said cover, said slit having inwardly curved ends providing abutments, and said tongue having locking tips that engage against said abutments to prevent withdrawal of said tongue.

6. A carton blank having formed thereon in succession, a tuck, a cover, a rear wall, a bottom, a front wall, and a sealing flap, said tuck having a portion cut out from its free edge conforming to the shape of said sealing flap, said sealing flap being joined to the adjacent edge of said front wall along a readily fracturable line, and end closing flaps attached to the opposite ends of said rear, bottom and front walls.

7. A carton blank having formed thereon in succession, a tuck, a cover, a rear wall, a bottom, a front wall, and a sealing flap, said tuck having a portion cut out from its free edge conforming to the shape of said sealing flap, said sealing flap being joined to the adjacent edge of said front wall along a readily fracturable line, said cover having a locking slit adjacent said tuck, said sealing flap having a tongue adapted to engage in said slit when a carton is formed from the blank, and end closing flaps attached to the opposite ends of said rear, bottom and front walls.

8. A carton blank having formed thereon in succession, a tuck, a cover, a rear wall, a bottom, a front wall, a sealing flap and a tongue, said tuck having a portion cut out from its free edge conforming to the shape of said sealing tongue, said sealing flap being joined to the adjacent edge of said front wall along a readily fracturable line, said cover having a locking slit adjacent said tuck, said tongue being adapted to engage in said slit when a carton is formed from the blank, and end closing flaps attached to the opposite ends of said rear, bottom, and front walls.

BRUCE J. DAVIDSON.