June 28, 1949. R. GUYER 2,474,476

CARTON

Filed Dec. 9, 1944 2 Sheets-Sheet 1

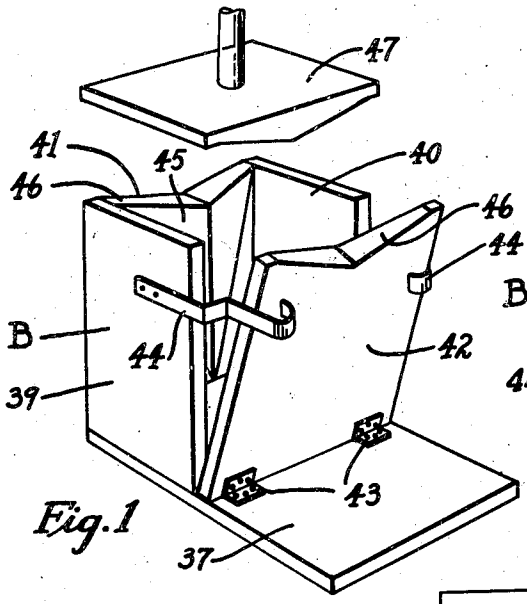


Fig. 1

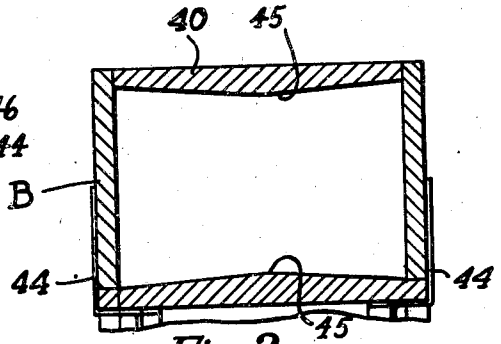


Fig. 2

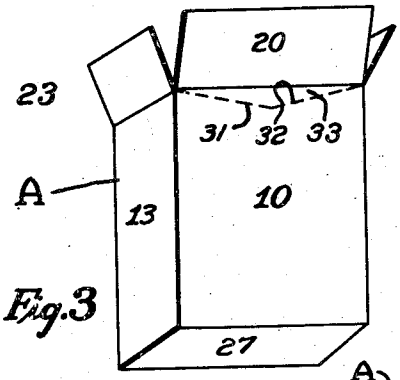


Fig. 3

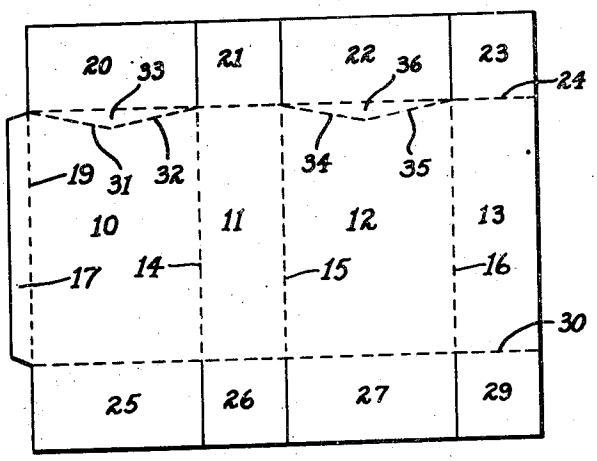


Fig. 4

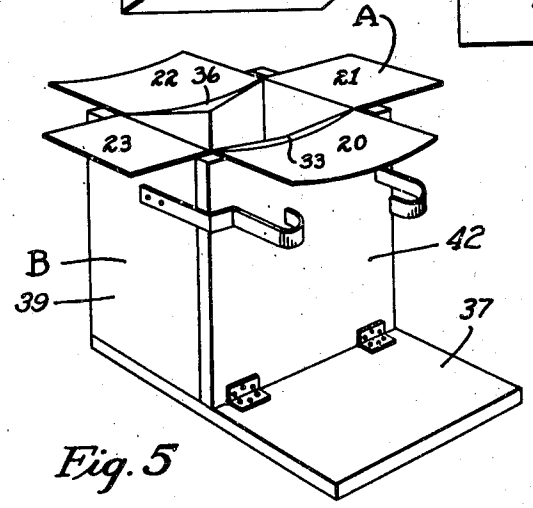


Fig. 5

Inventor
Reynolds Guyer
By Robert M. Dunning
Attorney

June 28, 1949. R. GUYER 2,474,476

CARTON

Filed Dec. 9, 1944 2 Sheets-Sheet 2

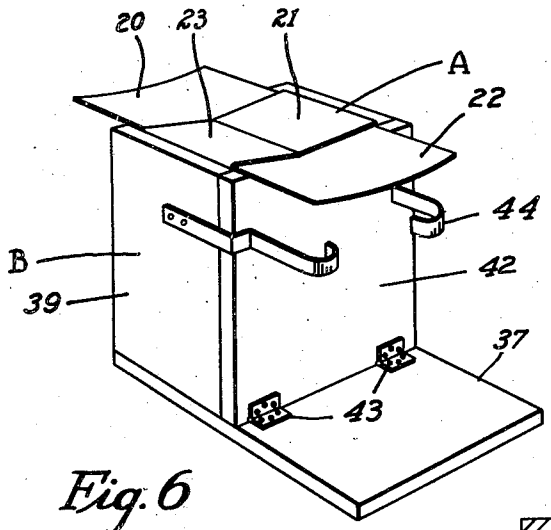


Fig. 6

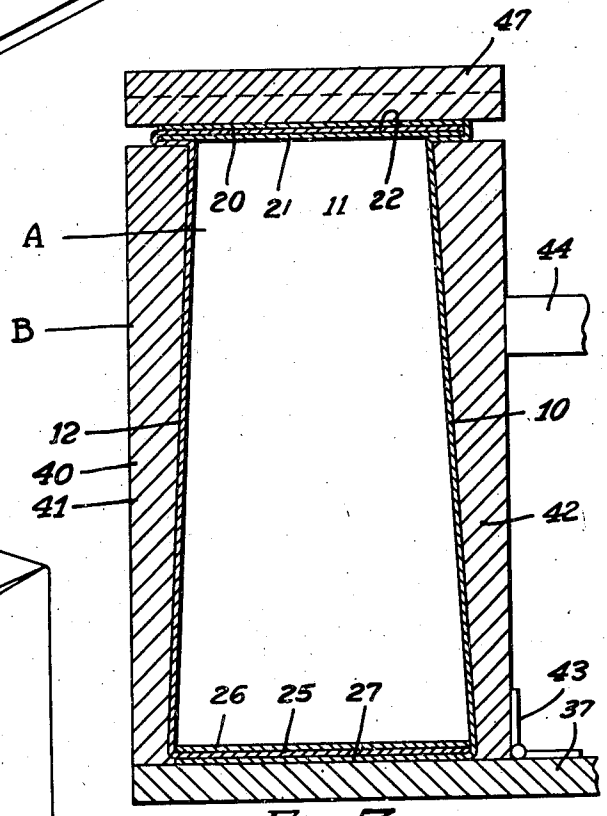


Fig. 7

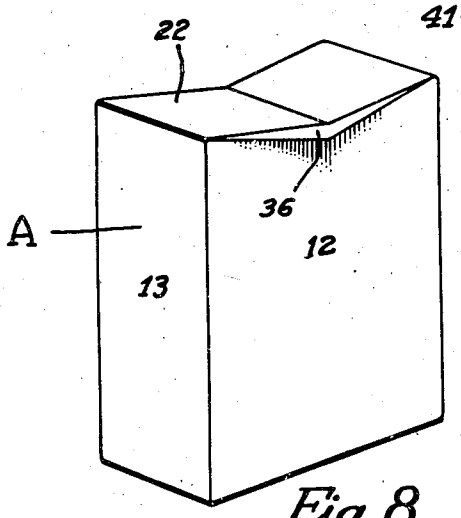


Fig. 8

Inventor
Reynolds Guyer
By Robert M. Dunning
Attorney

Patented June 28, 1949 2,474,476

UNITED STATES PATENT OFFICE

2,474,476

CARTON

Reynolds Guyer, St. Paul, Minn., assignor to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota

Application December 9, 1944, Serial No. 567,371

4 Claims. (Cl. 229—5.5)

1

My invention relates to an improvement in carton and method of forming the same, wherein it is desired to provide a tightly sealed glued end carton.

Various methods have been used to produce a carton having tightly sealed ends. A carton of the usual glued tubular type having rectangularly arranged side walls and closing flaps issuing from each of the walls and designed to fold into superimposed relation is difficult to seal to provide a tight closure. One end of such a carton may be readily sealed over a mandrel, but the other end thereof must be sealed after the carton has been filled. In sealing this second end of the carton it is often found that the short opposed flaps which are usually first folded down into opposed coplanar relation have a tendency to curve inwardly when sealing pressure is applied to the top of the carton, due both to the tendency of this pressure to bend in the top of the carton and to the tendency of the moist adhesive to curl these flaps.

It has been proposed to press the carton inwardly along a line parallel to the top of the carton and thus to provide a shoulder against which these opposed flaps may rest during the sealing process. This distortion of the walls of the carton has a tendency to split the carton at the corners thereof. Thus the improved seal obtained is often rendered valueless by the fact that the carton is torn at the corners.

I have found that by the use of a suitable pocket or mandrel and by properly scoring the carton a shoulder may be provided near the mid-portion of two opposed side walls of the carton against which the ends of the opposed flaps may be sealed. Bending the carton in this way has little or no tendency to split the carton at the corners and thus all of the advantages of the previous sealing method have been accomplished without the accompanying disadvantages.

An object of the present invention lies in pressing two opposed side walls of the carton inwardly near the upper end thereof to provide a substantially triangular shoulder against which each edge of the opposed sealing flaps may rest during the sealing process. This action tends to fold one end of the carton to some extent so that the end of the carton is not flat. By so doing the edges of the opposed sealed flaps engage the triangular shoulders provided by the folding operation, permitting sealing pressure to be applied to the end of the carton.

A feature of the present invention resides in the fact that if desired the top of the carton may be folded so as to present no raw edges of the carton stock within the container. As a result my carton is rendered more liquid tight, as the elimination of raw edges within the carton prevents wicking of liquid into these edges.

2

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

Figure 1 is a perspective view of a type of form which may be employed to produce my carton.

Figure 2 is a transverse section through the form illustrated in Figure 1.

Figure 3 is a perspective view of the carton in open position.

Figure 4 is a diagram view of the carton. blank showing the economy of the present style of folding.

Figure 5 illustrates the first step in the folding operation of the carton after the carton has been inserted into the folding form or receptacle.

Figure 6 shows the next step in the sealing of the carton.

Figure 7 is a vertical section through the sealed form and carton.

Figure 8 is a perspective view of the sealed carton.

The carton blank is in general similar to any ordinary glued end style of carton. As shown in Figure 4 of the drawings, the front panel 10, side panel 11, rear panel 12, and side panel 13 are connected together along parallel fold lines 14, 15, and 16. A glue flap 17 is connected to a panel 10 or 13 along the fold line 19.

Closing flaps 20, 21, 22, and 23 issue from the panels 10, 11, 12 and 13 respectively along a common line of fold 24. Closing flaps 25, 26, 27 and 29 issue from the opposite ends of the panels 10, 11, 12 and 13 respectively along the common line of fold 30.

The only distinguishing feature about the blank of the carton A lies in the provision of fold lines which diverge from the common fold line 24 into the panels 10 and 12. Fold lines 31 and 32 diverge from the fold line 24 to define a triangular area 33, the apex of this triangle being at approximately the central point in the width of the panel 10. Diverging fold lines 34 and 35 of substantially equal length are provided in the panel 12 defining a triangular area 36 at one end of this panel 12. The fold lines 31, 32, 34, and 35 are not entirely necessary, but are of assistance as the carton must fold along substantially these lines during the sealing operation.

The form or receptacle B is only illustrative of one type of form which may be used to accomplish the desired result. It is not necessary to completely enclose the carton during the sealing process and therefore certain of the walls of the pocket or receptacle may be omitted or partially omitted.

The pocket or form B includes a base 37 having side walls 39 and 40 projecting upwardly therefrom. A rear wall 41 of special construction con-

nects the side walls 38 and 40 and a front wall 42 also of special construction is provided to overlie the front of the carton. The front wall 42 is shown hinged at 43 to the base 37 and spring hooks 44 selectively hold the front wall 42 in carton compressing position as shown in Figures 5 and 6 of the drawings, or in open position as shown in Figure 1 of the drawings.

A pointed triangular projection 45 is provided on the inner surface of each of the walls 41 and 42. These projections 45 are arranged with their point or apex adjacent the base 37 and the center of each projection 45 tapers from a point to a thickness portion at the upper extremity of the wall 41 or 42. The inner surface of each of the walls 41 and 42 is thus provided with a pair of opposed flat triangular portions each extending half way across the wall at the base thereof and extending to a point at the upper end of the wall. The remaining substantially triangular portion tapers from a thickness point at the center of the upper extremity of the wall to the surface of the remainder of the wall at the lower extremity thereof.

The upper edges of each of the walls 41 and 42 are cut to provide a shallow V-shaped notch 46. This notch permits the flaps 20 and 22 to be folded outwardly when the carton is enclosed within the pocket B in such a manner that these flaps may be folded along the line of fold 24 during the sealing of the carton.

The carton A is placed in the form or pocket B and the front wall panel 42 is pressed against the front panel 10 of the carton, this action bowing inwardly the panels 10 and 12 at the upper extremity thereof. It will then be found that the flaps 21 and 23 may be folded outwardly as shown in Figure 5 of the drawings, the outwardly folded portions connected to the panels 10 and 12 compressing the flap 20 and its adjacent triangular portion 33 as well as the flap 22 and its adjacent triangular portion 36. This action causes the flaps 20 and 22 and the associated triangular portions to dish downwardly in the center to follow the shape of the notches 46.

The flaps 21 and 23 may next be folded inwardly as shown in Figure 6 of the drawings, the marginal edges of these flaps overlying the triangular areas 33 and 36. Obviously considerable pressure may be exerted against these flaps 21 and 23 due to the support afforded by the triangular shoulders 33 and 36.

The next sealing operation is ordinarily to apply adhesive to the undersurface of both of the flaps 20 and 22 or to apply adhesive to both surfaces of one of these flaps and to fold the flaps 20 and 22 into superimposed relation over the flaps 21 and 23. When thus folded pressure may be applied by means of a plunger 47, thus effectively sealing the flaps together.

The plunger 47 is preferably provided with bearing surfaces arranged in shallow V formation to fit the shape of the notches 46. Thus pressure is evenly applied over the entire surface of the flaps and the package is effectively sealed.

In practice the completed cartons after sealing usually gradually assume the natural rectangular shape. This change in shape may sometimes be assisted by using the last sealed end of the carton as the carton bottom, so that the weight of the contents tends to flatten out the carton bottom. It has been found unnecessary to provide an extremely wide shoulder, the drawings being somewhat exaggerated in order to disclose the principle involved.

I have described a particular manner of folding the closing flaps as it is common practice to fold two flaps such as 21 and 23 into opposed relationship before folding the remaining flaps 20 and 22 to overlie the same. Obviously, however, if desired I may fold either of the flaps 20 or 22 to close the end of the carton before the flaps 21 and 23 are folded into closing position. With the latter arrangement the extreme raw edges of the flaps 21 and 23 are not exposed to the interior of the carton and the free edge of the first folded flap 20 or 22 is protected by enclosure between the remaining closing flaps and the triangular bearing portion of the opposite carton side wall.

In accordance with the patent statutes, I have described the principles of construction and operation of my carton and method of forming the same, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A carton comprising substantially tubularly arranged side walls, end closing flaps issuing therefrom, and narrow substantially triangular areas at the upper extremity of two opposed side walls tapering to the planes of said two walls at the side edges thereof and underlying the closure flaps and forming marginal supports therefor in closed position thereof.

2. A carton comprising substantially tubularly arranged side walls, end closure flaps issuing therefrom and arranged to fold one upon another to form an end closure, and narrow substantially triangular bearing portions at the upper extremity of two opposed side walls tapering to the planes of the two walls at the side edges thereof and underlying portions of said closure flaps in closed position thereof and forming marginal supports therefor.

3. A carton comprising substantially tubularly arranged side walls, end flaps issuing therefrom and folded into superimposed relation to form an end closure, substantially triangular bearing portions on two opposed side walls, said triangular portions having one side thereof common with the lines of fold connecting the said opposed side walls to their respective closure flaps and the other two sides of the triangle extending to said lines of fold, said bearing portions forming opposed supports for said closure flaps.

4. A carton comprising substantially tubularly arranged side walls, end closure flaps issuing from one end thereof and secured in superimposed relation, and a triangular area at each end of two opposed side walls, said triangular areas underlying and contacting portions of the closing flaps in closed position thereof and forming marginal supports therefor, said closing flaps lying in two intersecting planes arranged in V formation.

REYNOLDS GUYER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
393,899	Haines	Dec. 4, 1888
2,061,967	Jagenberg	Nov. 24, 1936
2,178,730	Stein	Nov. 7, 1939
2,267,746	Pelosi	Dec. 30, 1941
2,351,165	Vergobbi	June 13, 1944
2,381,850	Williams	Aug. 7, 1945