

Oct. 29, 1957

K. E. MAXON

2,811,297

CARTON SPOUT CONSTRUCTION WITH CLOSURE

Filed Sept. 3, 1953

4 Sheets-Sheet 1

Fig. 1.

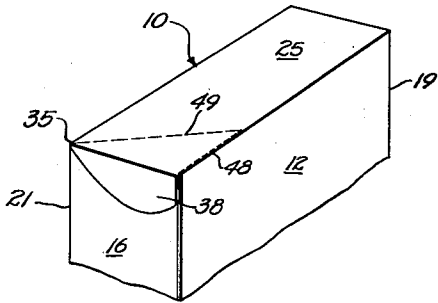


Fig. 2.

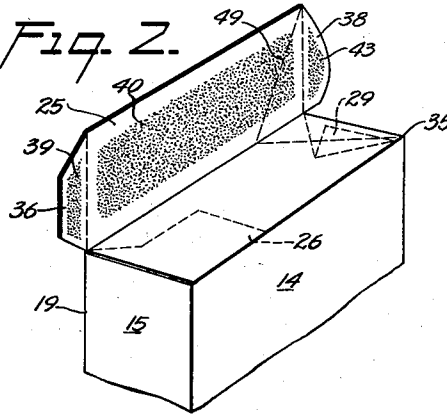


Fig. 3.

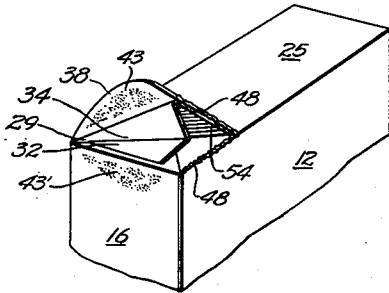


Fig. 4.

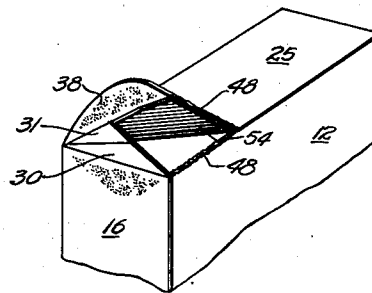


Fig. 5.

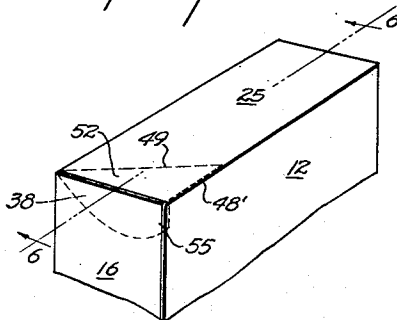
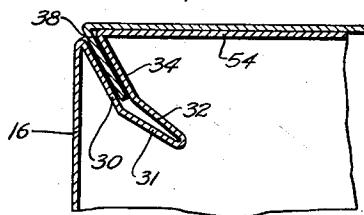


Fig. 6.



INVENTOR.
KARL E. MAXON

BY *J. R. Jenkins*

ATTORNEY.

Oct. 29, 1957

K. E. MAXON

2,811,297

CARTON SPOUT CONSTRUCTION WITH CLOSURE

Filed Sept. 3, 1953

4 Sheets-Sheet 2

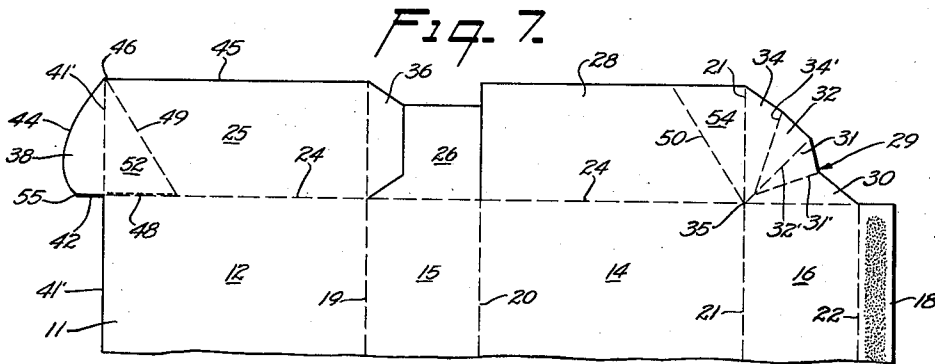


Fig. 8.

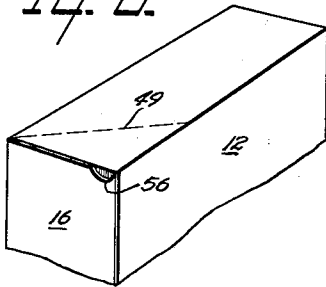


Fig. 9.

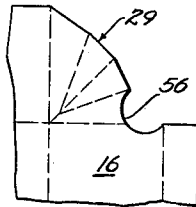


Fig. 12.

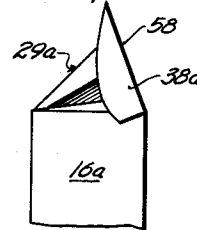
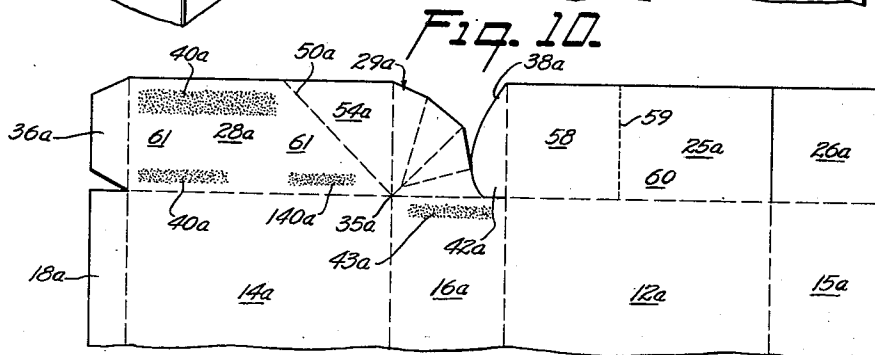


Fig. 11.

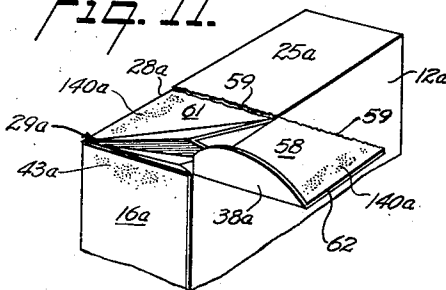
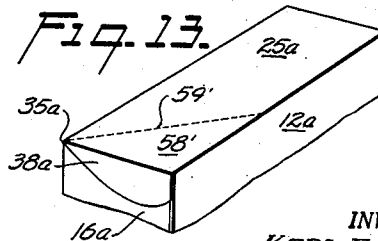


Fig. 13.



INVENTOR.
KARL E. MAXON

BY

J. R. Jenkins

ATTORNEY.

Oct. 29, 1957

K. E. MAXON

2,811,297

CARTON SPOUT CONSTRUCTION WITH CLOSURE

Filed Sept. '3, 1953

4 Sheets-Sheet 3

Fig. 14.

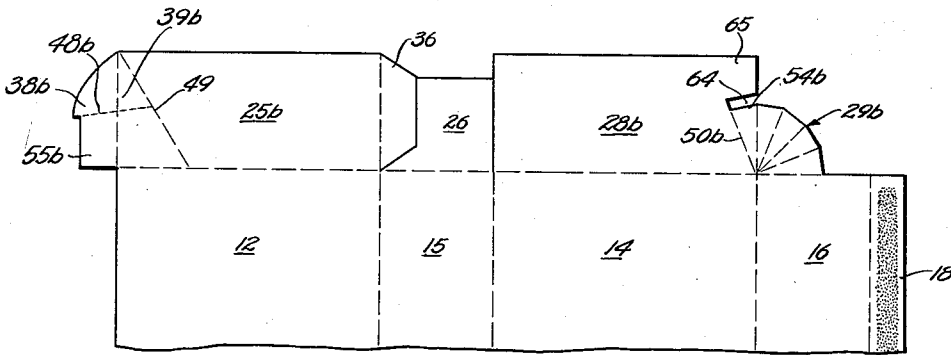


Fig. 15.

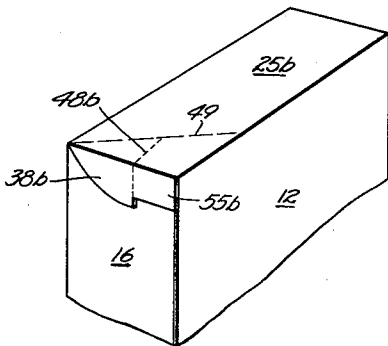
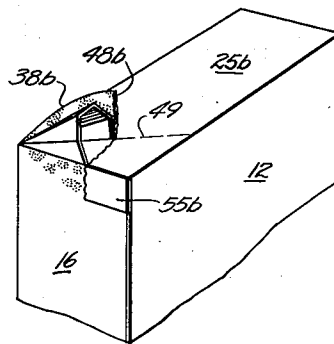


Fig. 16.



INVENTOR.
KARL E. MAXON
BY
F. R. Jenkins
ATTORNEY.

Oct. 29, 1957

K. E. MAXON

2,811,297

CARTON SPOUT CONSTRUCTION WITH CLOSURE

Filed Sept. 3, 1953

4 Sheets-Sheet 4

Fig. 17

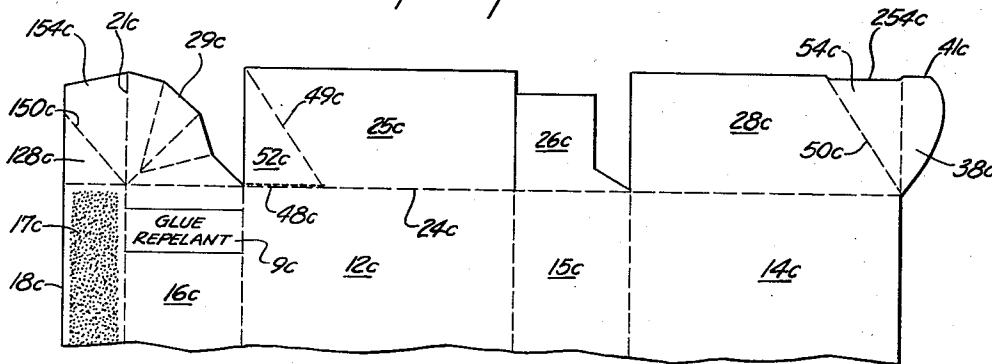


Fig. 18

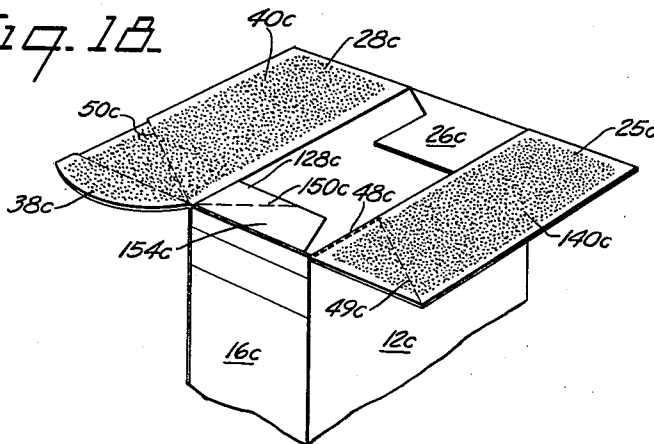
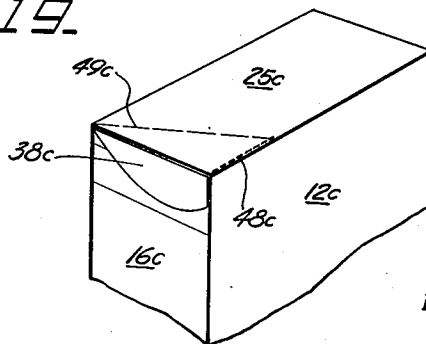


Fig. 19



1

2,811,297

CARTON SPOUT CONSTRUCTION WITH CLOSURE

Karl E. Maxon, Mineola, N. Y., assignor to William W. Fitzhugh, Inc., Brooklyn, N. Y., a corporation of New York

Application September 3, 1953, Serial No. 378,279

3 Claims. (Cl. 229—17)

This invention relates to cartons having pouring spouts and to means for closing the spouts.

The cartons and spouts of the present invention are generally similar to those shown in my Patent No. 2,565,182. While those cartons of my patent are durable and reliable their manufacture and use have presented certain difficulties. Particularly certain of my prior cartons could not be formed on the machines commonly employed in carton making plants. Furthermore, after the cartons were opened, and their spouts distended, the bulk of spout prevented effective closure of the carton and spout with the result that a corner of the carton top frequently remained in elevated position, thereby affording a trap for dust.

To overcome these difficulties I now provide a carton having a corner pour spout wherein the top of the carton is provided with a lift tab which not only enables easy opening but which may be tucked in tightly between portions of the spout to hold the corner in a neatly closed position.

In the accompanying drawing showing, by way of example, several of many possible embodiments of the invention,

Fig. 1 is a fragmental perspective of one form of the unopened container;

Fig. 2 is a fragmental perspective showing a stage in the manufacture of the carton of Fig. 1;

Fig. 3 is a fragmental perspective showing a stage in the opening of the carton of Fig. 1;

Fig. 4 is a fragmental perspective showing the opened carton of Fig. 1 with the spout in distended position;

Fig. 5 is a fragmental perspective showing the opened carton of Fig. 4 closed;

Fig. 6 is a fragmental sectional view of the closed carton of Fig. 5, the section being taken substantially along the line 6—6 of Fig. 5 looking in the direction of the arrows of said line;

Fig. 7 shows the blank of the carton of Figs. 1—6;

Figs. 8 and 9 show a modification of the carton and blank respectively;

Fig. 10 is a fragmental plan of a blank of another form of the carton;

Fig. 11 is a fragmental perspective showing the opened carton of the blank of Fig. 10;

Fig. 12 is a fragmental side view of the carton of Fig. 11 temporarily closed;

Fig. 13 is a fragmental perspective of a modification of the carton of Fig. 11 in unopened condition;

Fig. 14 shows the blank of another form of the carton;

Figs. 15 and 16 are perspectives showing the carton formed from the blank of Fig. 14 and in closed and open condition respectively;

Fig. 17 shows a blank of another form of the invention;

Fig. 18 is a perspective of a carton being formed from the blank of Fig. 17, and

Fig. 19 is a perspective of the carton formed from the blank of Fig. 17.

The container 10 of Fig. 1 is formed from a blank 11

2

of Fig. 7 having front and rear face panels 12 and 14, side edge panels 15 and 16, and a glue flange 18, provided with adhesive 17 all bounded by vertical crease lines 19, 20, 21 and 22 in a conventional manner. The panels are joined at their upper ends, at crease line 24, to a front top flap 25, and end flap 26, a rear top flap 28, and a spout member, generally designated 29, and more fully described in my Patent No. 2,565,182.

The spout member or radially articulated web 29 is joined at the crease line 21 to the rear top flap 24 and includes somewhat triangular sections 30, 31, 32 and 33, successively joined at folding lines 31', 32', 34' generally approximately radial to the corner 35.

It is to be understood that the carton is provided with conventional bottom flaps, the manipulation of which presents no problem in "setting up" the carton. Moreover, with my new construction the gluing of the top presents no difficulties. The carton is first squared and the end flap 26 and web 29 turned inwardly, and the rear top flap 28 folded down upon them, leaving the front top flap 25 still in the plane of the front panel 12, as shown in Fig. 2. With the carton in this condition, glue is easily applied to the inner face of the top flap 25, including the reinforcing tab 36 and the lift tab 38 projecting from opposite ends of the flap 25. The adhesive is applied as at 39 to tab 36, as at 40 to the top 25 and as at 43 to tab 38.

The lift tab 38 joins the top flap 25 at a crease line 41 aligned with outer edge 41' of the rear panel 12. The tab 38 preferably has a straight side edge 42 aligned with crease line 24, although as explained below other shapes may be used with less convenience. The outer edge 44 of the tab 38 is preferably curved smoothly to approach the free edge 45 of the top 25 at an angle of about 45 degrees or less at 46. It will be noted that the end portion of the crease line 24 near the tab 38 is provided with tear perforations 48 and that the top flap 25 is provided with a crease line 49 originating at point 46. A mating crease line 50 is provided in the other top flap 28. These crease lines divide off a triangular portion 52 from flap 25 and a similar portion 54 from flap 28.

The top is finally closed by gluing down the flap 25 upon the upper face of flap 28. The reinforcing tab 36 is secured to the outer face of panel 15 in a conventional manner, and the lift tab 38 lightly glued to panel 16. The carton thus assumes its final state as shown in Fig. 1, in so far as its upper part is concerned, and may be filled and sealed at the bottom by conventional means, though it may also be filled just before taking the condition as shown in Fig. 2.

To open the carton the glue between the lift tab 38 and panel 16 is broken as at 43 and 43' by a light tug on the former and a tear is made along the perforations 48. This action causes the triangular portion 52 to hinge upwardly on the crease line 49 carrying with it the triangular portion 54, to which it is glued. Since the sector 34 of the spout member 29 is joined at crease line 21 to portion 54 this causes a partial emergence of the spout member as shown in Fig. 3. The spout member is then "snapped out" to pouring position as in Fig. 4.

To close the carton, the spout member 29 is tucked back into a position as in Fig. 3 and the lift tab turned down inner of the panel 16. This inserts the tab 38 between sectors 30 and 34 of the spout member. When the triangular portion 52 lies in the plane of the top 25, the tear at 48 is closed as shown at 48' of Fig. 5.

In practice, it has been found that the tucked in lift flap becomes tightly engaged between the sectors 30 and 34 in a manner such as in Fig. 6 wherein the spout sectors are not parallel to any of the carton walls.

By having the edge 42 of the lift tab straight a tip 55, further from the corner 46 (or 35) in distance than the

3

width of the panel 16, is provided on the tab 38. This tip resists movement of the tab from between the sectors 30 and 34 by its engagement with the inner face of panel 12, even though its motion about corner 46 be not true circular motion. The angle of the crease lines 52 and 54, which may be varied, affects this action of course to a degree, although when the angle between lines 41 and 49 is as small as 30 degrees the closure is effective. To facilitate the opening of the closure, after the carton has been originally opened, a thumb notch 56 may be provided in panel 16 as in Figs. 8 and 9.

In another form of the invention as shown in Figs. 10 to 13 the construction is somewhat similar to that shown in Figs. 1 to 9, the major exceptions being the saving of stock and the manner in which the top flaps are secured and opened.

In Fig. 10 both the web or spout member 29a and the lift tab 38a are formed from material contiguous to the side panel 16a and it is noted that even though the side edge of the lift tab is shown straight as at 42a such shape does not have the same function in this form of the invention as that of Fig. 1. The various panels 12a, 14a and 15a are similar to corresponding panels 12, 14 and 15 as are flaps and tabs 18a, 28a, 36a and 26a similar to their counterparts 18, 28, 36 and 26 previously described. However, the top flap 25a is not perforated along a crease line as is flap 25 but transverse of the flap as shown at 59, dividing off a square part or tear flap 58 joined to the lift tab 38a. Nor is the square part 58 tightly secured to the upper face of flap 28a nor even secured to the triangular part 54a of the flap 28a. Instead, the remaining portion 60 of flap 25a is tightly secured to the main body 61 of the flap 28a by adhesive such as shown at 40a. This leaves the square part 58 lightly secured to the upper face of flap 28a in the general vicinity of the corner 35a of the main body 61 by adhesive as shown at 40a. The lift tab 38a is lightly adhered to panel 16a at 43a. When the carton is opened, the tab 38a is lifted, the adhesive 140a is broken and the flap 25a torn along the line 59 so as to expose the spout member 29 as in Fig. 11. After the spout member is snapped out it may be covered in such position by the square part 58 as in Fig. 12. This enables a temporary closing of the spout and protects the carton contents from dust, though it gives no appreciable protection against spilling of the contents.

The crease line 50a dividing off triangular part 54a, as is true of the crease line 50, should divide off a large enough triangular portion 54a to enable the spout member 29a to be snapped out and in, but other than that restriction its size may be varied greatly provided, of course, it has a corner at 35a.

The location of the tear line 59, provided the tear flap covers 54a, may be varied both as to position and direction. However if the tear flap is intended to temporarily cover the spout, the length of the free edge 62 (Fig. 11) must be sufficient to cover the spout. The smallest area the cover may take is that of a triangle 58' Fig. 13 equal in area to that of 54a and bounded by the perforation line 59'.

It is of course apparent that the tear line 59 may be employed in the carton of Fig. 1 instead of tear line 48 if the sealing is effected as in Fig. 11. The tabs or flaps 26, 36, 26a, and 36a may be omitted, if desired, insofar as the spout is concerned.

For tightly closing the opened carton of Fig. 11 and Fig. 13 the lift tab 38a is tucked in between the folds of the web 29a in a manner previously described in connection with Fig. 5 although the tip 55 does not perform the function as described in Fig. 5.

The shape of the carton may be varied widely, about the only requirements being that the triangular portions, such as 52, 54 and 54a be of sufficient size to permit a snapping out of the spout member and that sufficient side panel and top material adjoin it.

4

Changes in the form of the blank may be made. It is to be noted however that even with the glue flange 18 as shown in Fig. 7 there is virtually no loss of stock for the flange 18 normally comes below material for making the lift tab of a following blank.

If the spout is too large or bulky, especially for free running materials to be used sparingly such as salt, the top flaps may be slightly modified as shown of 25b and 28b in Fig. 14 and a radially shorter spout member 29b provided. Preferably the crease line 50b dividing off the triangular portion 54b from the remainder of the top flap 28b does not extend to the free edge of the latter but terminates at a slot 64 leaving a strong corner portion 65. The corner portion 65, when glued to inner face of flap 25b greatly increases the strength of the carton at this corner.

The mating parts of flap 25b are somewhat different from those of Figs. 7 and 10 in that the projecting tab is made up of a lift tab 38b and a permanent tab 55b being divided at a tear line 48b extending to the crease line 49 which divides off a portion 39b which is secured to part 54b. The carton is initially sealed in a manner described of Figs. 1 and 11.

In opening the carton, the lift tab 38b and portion 39b are torn off along the line 48b as the adhesive of tab 38b is broken leaving tab 55b secured in place. The spout member is snapped out to a position as in Fig. 16. The lift tab 38b can, of course, after the spout is snapped in, be tucked back as described of Figs. 5 and 8.

For strengthening the carton at the corners at the spout the blank of Fig. 7 may be modified as shown in Fig. 17. This blank includes front and rear face panels 12c and 14c and side edge panels 15c and 16c. However, instead of the glue flange being a trailing extension of an edge face panel as in Fig. 7 the flange 18c is a lead portion of panel 16a and a part of the flange extends above the fold line 24c which bounds the inner and outer top flaps 28c and 25c as well as the glue flap 26c and spout member 29c. The upper portions 128c and 154c of the glue flange to the left of fold line 21c are substantially identical with a narrow portion of the flap 28 to the left of fold line 21 in Fig. 7. The lift tab 38c is preferably a trailing extension from the top flap 28 joined thereto at fold line 41c. The triangular portion 54c of the inner flap 28 is preferably provided with an inset 254c to accommodate passage of a knife blade in the event that the perforations 48c do not permit easy tearing of stock to open the carton.

Not only does the blank of Fig. 17 afford a stronger carton but it may be set up on very simple machines. A satisfactory manner for erecting the carton from the blank is to fold the web 29c and upper end of the flange (above line 24c) back of the plane of the blank and apply adhesive 17c to the flange, after which the latter is secured to the face panel 14c in a well known manner. The box is then squared and flange portions 128c and 154c and flap 26c turned in. The inner faces of top flaps 25c and 28c, including the lift tab, are next coated with adhesive 140c and 40c and then flap 28c secured to parts 26c, 128c and 154c. Finally the top flap 25c is secured down on flap 28c and the tab 38c secured to the panel 16c above the glue repellent area 9c. It will be noted that diagonal fold lines 49c, 50c, and 150c all substantially coincide.

The invention claimed is:

1. A carton comprising two face panels and an edge panel therebetween; an inner top flap joined to one of the face panels at a corner of the carton; a spout member below said flap and joined to and along the upper edge of the edge panel and to said top flap and consisting of an outwardly distensible web articulated substantially radially from said corner; an outer top flap joined to the second face panel and overlying the inner top flap, and a lift tab joined integrally to the outer top flap along a line nearly coincident with the upper edge of the edge

5

panel, the inner and outer top flaps being secured together adjacent the tab, a weakened tear line being provided at the joining of the outer top flap to the second face panel and originating substantially at the edge panel, both said top flaps being provided with substantially coincident crease lines originating at said corner and substantially intersecting the line of the tear line.

2. A carton comprising two face panels and an edge panel therebetween; an inner top flap joined to one of the face panels at a corner of the carton; a spout member below said flap and joined to and along the upper edge of the edge panel and to said top flap and consisting of an outwardly distensible web articulated substantially radially from said corner; an outer top flap joined to the second face panel and overlying the inner top flap, and a lift tab joined integrally to the outer top flap along a line nearly coincident with the upper edge of the edge panel, said tab being provided with a tear line intersecting an outer edge thereof and extending on the outer

6

top flap remote from the face panels and always lying remote from said corner by a distance at least as great as the greatest radial dimension of the web.

3. A carton as in claim 2, wherein both said top flaps are provided with substantially coincident crease lines originating at said corner and substantially meeting said tear line.

References Cited in the file of this patent

UNITED STATES PATENTS

1,953,885	McAleer	Apr. 3, 1934
1,975,963	Marsh	Oct. 9, 1934
2,345,978	Hulton	Apr. 4, 1944
2,364,364	Hultin	Dec. 5, 1944
2,417,498	Hultin	Mar. 18, 1947
2,565,182	Maxon	Aug. 21, 1951
2,593,019	Glaser	Apr. 15, 1952