

April 16, 1963

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3,085,733

CARTON HAVING BUILT-IN POUR SPOUT

Filed Dec. 12, 1960

2 Sheets-Sheet 1

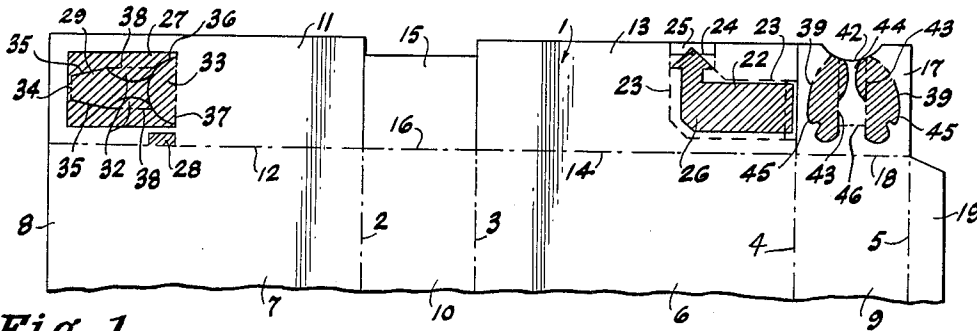


Fig. 1.

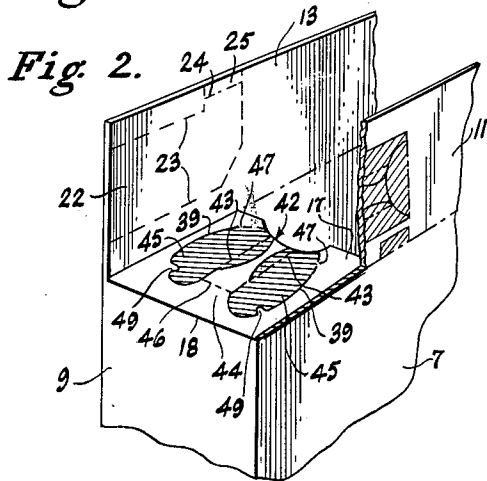


Fig. 2.

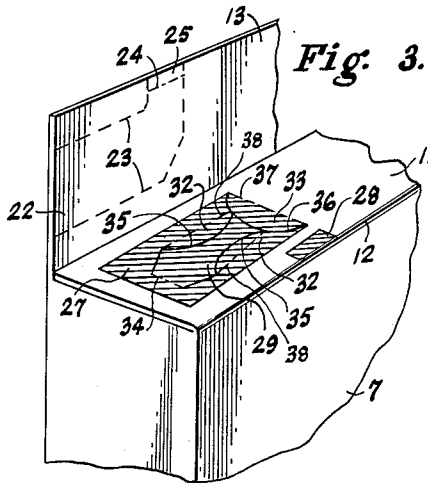


Fig. 3.

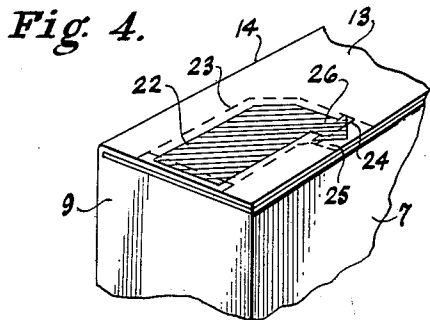


Fig. 4.

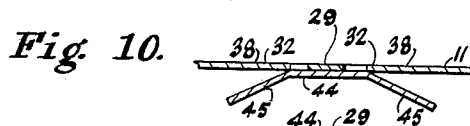


Fig. 10.

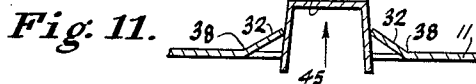


Fig. 11.

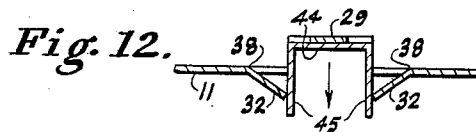


Fig. 12.

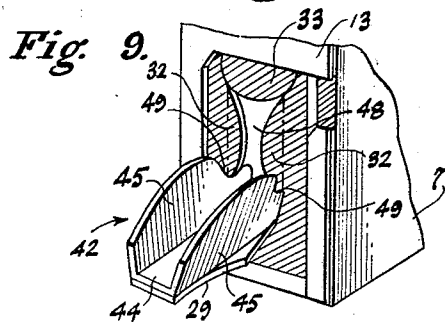


Fig. 9.

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Fig. 5.

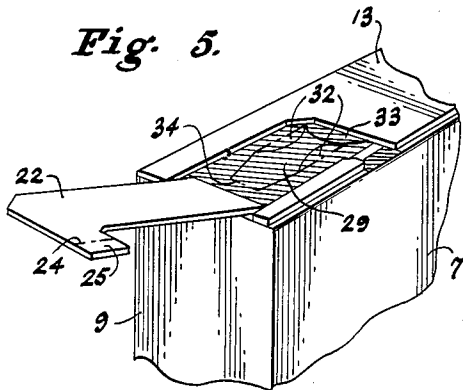


Fig. 6.

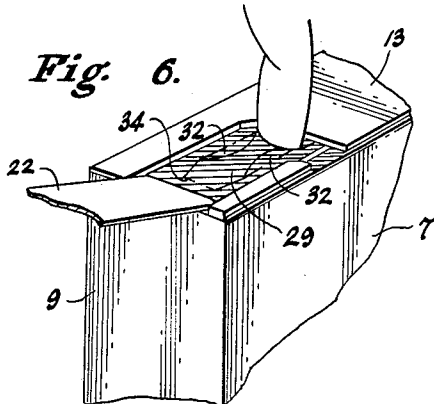


Fig. 7.

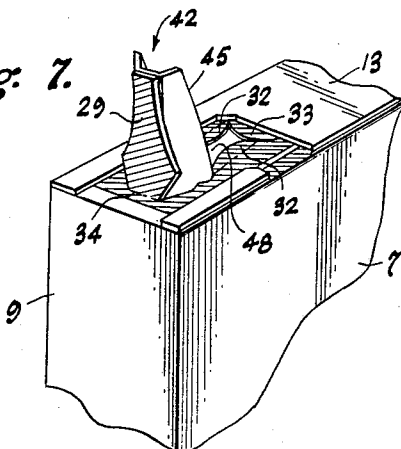


Fig. 13.

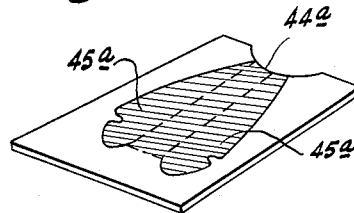


Fig. 14.

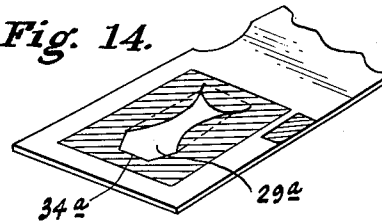
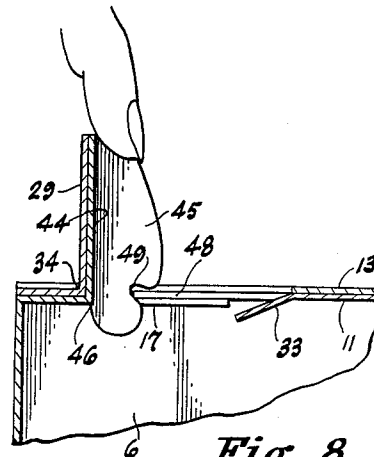


Fig. 8.

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CARTON HAVING BUILT-IN POUR SPOUT

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7 Claims. (Cl. 229-17)

This invention relates to cartons having built-in pouring spouts and is a continuation-in-part of my co-pending applications Serial No. 680,687, filed Aug. 28, 1957, now Patent No. 2,989,224, and Serial No. 31,618, filed May 25, 1960, now abandoned.

It is a general object of this invention to improve the structure and operation of cartons of the type described in the above-mentioned co-pending applications.

It has been found that on certain occasions, and with certain types of merchandise packaged in a pour-spout carton, the flow through the pour spout is difficult to control and becomes undesirably excessive. This is due to the relatively large aperture in the box through which the contents flow into the spout. This aperture is formed when the spout is swung into erect or operative position.

According to the present invention, the shape of the aperture has been altered to provide for a pair of opposed ears which partially close off the aperture and thus limit the flow of the carton contents through it. In addition, these ears are made yieldable so as not to interfere with the movement of the spout between closed and erect positions.

Another problem which has arisen with this type of carton is the fact that finely granulated contents have a tendency to sift out of the box through the slits in the closure flaps which form the built-in spout. The present invention is characterized by the fact that the outer closure flap of the carton, which overlies the inner flap in which the aperture is formed, is adhesively attached to the inner flap along a continuous area which surrounds the aperture thus forming a sift-proof seal.

Still another feature of the present invention involves a section in the outer closure flap which may be torn out to expose the aperture in the inner flap therebeneath and permit access to the spout. This tear-out section remains adhesively secured, along one of its margins, to the inner flap, and hence after the spout has been used and folded back into its closed condition, the tear-out section may be folded down to its original position to cover the spout.

Usually the aperture is created by cuts defining a hinged tongue, the elevation of the tongue thus serving to open the aperture. The tongue may be adhesively secured to the spout. Under certain circumstances, however, it has been found advantageous to adhesively secure the tongue to the tear-out section in the outer flap rather than to the spout. Accordingly, the present invention includes an alternative embodiment in which the tongue is secured to the tear-out section and is completely disconnected from the inner flap when the tear-out section is removed.

Other features and advantages of the present invention will become apparent from the following description in which reference is made to the accompanying drawings.

In the drawings:

FIG. 1 is a face view of one end portion of a cardboard blank from which the improved carton is made;

FIG. 2 is a perspective view, with a portion of one of the end closure flaps broken away, of one end of the carton in process of being sealed, showing one of the tucks folded into position;

FIG. 3 is a similar view of the next step, showing the inner closure flap folded down on top of the tuck;

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FIG. 4 shows the outer closure flap folded down on top of the inner closure flap to seal the carton;

FIG. 5 shows the first step involved in putting the carton to use, and depicts the removal of a portion of the outer closure flap to expose the tongue formed in the inner closure flap;

FIG. 6 is a view showing how the finger is next inserted through the inner closure flap when it is desired to open the spout to operative position;

FIG. 7 shows the spout in its fully raised or erect position;

FIG. 8 is a longitudinal sectional view through the carton in the condition shown in FIG. 7;

FIG. 9 is a perspective view of the spout in the position it assumes when the carton contents are dispensed through it showing how the ears tend to retard the flow of carton contents;

FIG. 10 is a transverse sectional view showing the spout in closed condition;

FIG. 11 is a view similar to FIG. 10 showing the spout as it is being opened to erect position;

FIG. 12 is a view similar to FIG. 11 showing the spout being folded into closed position;

FIG. 13 is an alternative embodiment of the tuck in which the spout is formed; and

FIG. 14 is an alternative embodiment of the inner flap in which the tongue and ears are formed.

The carton to which the present invention relates may be one of the conventional rectangular types in wide use for packaging powdered materials of all kinds, such as for example, powdered soaps, detergents, salt, and sugar. The cartons are often provided with pouring spouts since it is desirable to dispense their contents in small quantities at spaced intervals.

In FIG. 1, one end portion of a cardboard blank 1 from which the carton is made is shown. The blank 1 is preferably a single sheet adapted to be folded on the longitudinal score lines 2, 3, 4 and 5, to form it into the conventional rectangular box shape.

The front wall 6 of the carton is represented by the area between the score lines 3 and 4, and the rear wall 7 is represented by the area between the score line 2 and the end 8 of the blank 1. The side walls of the carton are indicated at 9 and 10 and a sealing or connecting strip is indicated at 19. While the walls 6 and 7 are respectively designated as the front and rear walls of the carton, it will be understood that either of these walls can be used as the front wall, the designations being applied to them merely for convenience.

Extending from the end of the rear wall 7 is a closure flap 11 for the end of the carton. The flap 11 will be designated the "inner flap," and when it is positioned to close the end of the carton it is folded down on the score line 12. A similar end closure flap 13, which will be referred to as the "outer flap," extends from the front wall 6, and in its closed position it is folded down along the score line 14 to cause it to lie directly over the inner flap 11. Extending from the side wall 9 is a tuck 17 foldable downwardly along the score line 18. A similar tuck 15 extends from the side wall 10 and is foldable downwardly along the score line 16.

The outer flap 13 is provided with a removable tear-out section 22 formed by a pair of perforated lines 23. The tear-out section 22 extends from one end edge of the outer flap 13 into the interior of the flap, and communicates along a relatively narrow region with the free lateral edge of the outer flap. The relatively narrow region of the tear-out section is provided with a transverse score line 24 which defines a tab 25 between the score line and the lateral edge of the flap. The tear-out section 22 is

imprinted with an arrow 26 indicating how the tear-out section is to be removed.

The inner flap 11 is provided with a rectangular inked area 27, and a smaller inked area 28. The ink employed is of a special character which repels glue. As a result, if glue is applied to the entire face of the flap 11, it will adhere only to the areas which do not bear the ink. The inked area 27 is so spaced on the inner flap 11 that when the inner flap and the outer flap 13 are folded into closed condition (see FIGS. 3 and 4) the area 27 will underlie the tear-out section 22. As a result, the major portion of the tear-out section will not be glued to the inner flap 11. In addition, the area 28 is so placed that it will underlie the tab 25, thus permitting the tab to be lifted readily when the tear-out section is to be removed. The tear-out section will be glued to the inner flap along its margin adjacent to the end edge of the outer flap 13. In this way, at the option of the user, the tear-out section can remain attached to the carton along this margin (see FIG. 5) and folded back into its original position after the spout has been closed.

Within the inked area 27, the inner flap 11 is provided with a tongue 29, a pair of ears 32, and a depressible tab 33. These elements are formed by a score line 34, which defines a hinge about which the tongue 29 is pivoted out of the plane of the inner flap 11, a pair of slits 35 which diverge outwardly from opposite ends of the score line 34 and inwardly along opposed arcuate paths, the arcuate portions of the slits 35 serving to form the opposed ears 32, and an arcuate slit 36 which forms the tab 33. A score line 37 is provided to make the tab 33 yieldable downwardly in order to permit the finger (see FIG. 6) to be inserted through the inner flap 11. In addition, each of the ears 32 is provided with a score line 38 to make the ears yieldable upwardly or downwardly for a purpose to be mentioned hereinafter.

The tuck 17 is provided with a pair of slits 39 which define a pouring spout 42. A pair of score lines 43 divide the spout into a central panel 44 and a pair of side walls 45. At one end of the central panel 44 is a transverse score line 46 which acts as a hinge line about which the spout 42 is pivoted out of the plane of the tuck 17. The side walls 45 are inked as is the portion of the central panel 44 which underlies the ears 32. As a result, the side walls will not adhere to the underside of the inner flap 11, when the carton is formed, and the ears 32 will not adhere to the central panel 44. However, since the portion of the central panel 44 which underlies the tongue 29 in the inner flap 11 does not carry ink, the tongue 29 will adhere to the central panel 44. As a result, since the score line 34 directly overlies the score line 46, the spout 42 and tongue 29 may be pivoted as a unit about their respective score lines. It will be seen that the slits 39 are not entirely continuous in order to provide for small connecting bridges 47 between the spout and the remainder of the tuck 17. These connecting bridges maintain the spout in the plane of the tuck 17 while the carton is being formed, but are readily torn when the spout is pulled out into operative condition.

Referring to FIGS. 2-4 it will be seen how the carton is closed after it has been filled, if it is top-filled, or before filling, if it is bottom filled. The tucks 15 and 17 are first inturned along their respective score lines 16 and 18 into horizontal position. Glue is applied to the upper faces of the tucks, and then the inner closure flap 11 is folded into horizontal position on top of the tucks along its score line 12. As was mentioned above, the entire tuck 17 will adhere to the underface of the inner flap 11 except for the areas which have been inked. Finally, glue is applied to the upper face of the inner flap 11 and then the outer flap 13 is folded downwardly along its score line 14 on top of the inner flap 11. Again, the outer flap 13 will adhere to the inner flap 11 except where the inner flap has been inked.

It should be noted that the inked area 27 is spaced

from each of the edges of the inner flap 11, and that there is a space between the inked area 27 and the inked area 28. Consequently, the outer flap 13 is glued to the inner flap 11 along a continuous area which completely surrounds the slits forming the tongue 29, the ears 32, and the tab 33. As a result, it is impossible for any of the carton contents to sift out through these slits.

The manner in which the carton is used may be seen by referring to FIGS. 5-8. The tab 25, which has not been glued to the inner flap 11 due to the inked area 28, is grasped and the tear-out section is torn along the perforated lines 23. The finger is then inserted into the carton by depressing the tab 33 so that the free end of the central panel 44 of the spout 42 may be engaged. As the spout is pulled outwardly, it pivots about its hinge line 46, and the tongue 29 which is adhesively secured to the spout pivots about its hinge line 34. Movement of the tongue 29 out of the plane of the inner flap 11 forms an aperture 48 in the inner flap through which the contents of the carton flow into the spout when the latter is in erected position.

As the spout 42 is pulled outwardly its side walls 45 contact the opposite edges of the aperture 48 and are thereby pivoted about their respective score lines 43 so that each of them forms a dihedral angle with the central panel 44 thus giving the spout a channel shape. The spout is pulled outwardly until a notch 49 in each of the side walls 45 reaches the level of the inner flap 11. At this point, the resilience of the carton material urges the side walls 45 outwardly so that the notches 49 engage the edge of the aperture 48 and thus lock the spout in erect position. If the carton is then tilted appropriately, the contents will flow through the aperture 48 into the spout 42 and are dispensed wherever desired.

Referring to FIG. 9, an important feature of the present invention will be seen. The ears 32 formed in the inner flap 11 project toward each other on opposite sides of the aperture 48 and serve to narrow the aperture in the region between them. As a result, these ears tend to retard the flow of the carton contents through the upper portion of the aperture 48 in FIG. 9. Consequently, a spilling or dumping effect of the contents through the upper portion of the aperture 48 into the spout 42 is avoided, and a smooth flow of contents into the spout is maintained.

It is sometimes desirable to form the ears 32 so close together that the spacing between them is less than the width of the central panel 44 of the spout. In this situation, the ears 32 are made yieldable so as to permit the spout 42 to be moved from closed to erect position, and from erect to closed position. This yieldability is provided by the score lines 38 which act as hinge lines about which the ears are permitted to pivot. FIG. 10 illustrates the spout in closed position, and hence the tongue 29 and ears 32 lie in the same plane and in the plane of the inner flap 11. As the spout starts to move toward open position (FIG. 11), it engages the ears 32 and bends them outwardly thus temporarily making the aperture 48 large enough to permit the passage through it of the spout. After the entire spout has passed between the ears 32, the resilience of the carton material returns them to the plane of the inner flap 11. As the spout is moved toward closed position from erect position (FIG. 12), the ears 32 are bent downwardly to permit the passage of the spout. Thereafter, they return to their normal position in the plane of the inner flap 11. Of course, before the spout can be returned to closed position from erect position, the side walls 45 must be pressed inwardly in order to release the locking action of the notches 49.

It has been found that in certain situations, particularly where the carton contains finely granulated material and when the carton is bottom filled, the particles of granulated material have a tendency to get between the tuck 17 and the inner flap 11 thus preventing the forma-

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tion of a secure bond between the upper face of the central panel 44 and the lower face of the tongue 29. In these situations, it is therefore desirable to ink the upper face of the central panel 44a (FIG. 13) as well as the side walls 45a of the spout. Also, the upper face of the tongue 29a (FIG. 14) is left devoid of ink, and the line 34a is slit rather than scored as is the line 34. As a result, the tongue 29a will be caused to adhere to the lower face of the tear-out section 22 rather than to the central panel 44a. Consequently, as the tear-out section 22 is removed the tongue 29a will be removed from the inner flap 11 along with it.

It will be seen, therefore, that the present invention provides means for retarding the flow of contents out of the carton in order to maintain a smooth controllable flow, and permits the outer flap 13 of the carton to be glued to the inner flap along a continuous area completely surrounding the spout forming parts of the box in order to produce a completely sift-proof seal.

The invention has been shown and described in preferred form only, and it is understood that many variations may be made which will still be comprised within the spirit of the invention. It is understood, therefore, that the invention is not limited to any specific form or embodiment except insofar as such limitations are set forth in the appended claims.

What is claimed is:

1. In a carton for flowable material, an end wall comprising a tuck and a flap directly over it, the tuck being slit to define a pour spout formed of a central panel and side walls, one end of the central panel being connected to the tuck along a hinge line, said flap being provided with an aperture through which the spout may be swung to an outwardly projecting operative position, and a pair of opposed ears projecting toward each other from opposite sides of said aperture, said ears being positioned in the path of material flowing outwardly through said spout and serving to retard said flow.

2. In a carton, the combination of elements defined in claim 1, wherein the space between said ears is less than the width of the central panel of the spout, said ears being yieldably mounted to allow the ears to deflect when the spout is moved through said aperture.

3. In a carton, the combination of elements defined

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in claim 2, wherein said ears are integral parts of said flap and are connected thereto along hinge lines.

4. In a carton for flowable material, an end wall comprising a tuck and a flap directly over it, the tuck being slit to define a pour spout formed of a central panel and side walls, one end of the central panel being connected to the tuck along a hinge line, said flap being slit to define a tongue overlying the central panel of the spout, one end of the tongue being connected to the flap along a hinge line directly over the hinge line of the spout, whereby outward swinging movement of the tongue leaves an aperture in the flap through which the spout may be swung to an outwardly projecting operative position, the slits defining the tongue being shaped to define also a pair of opposed ears projecting toward each other from the sides of said aperture, said ears being positioned in the path of material flowing outwardly through said spout and serving to retard said flow.

5. A carton as defined in claim 4 in which said tongue is adapted to be adhesively secured to the central panel of the pour spout.

6. In a carton, the combination of elements defined in claim 4, including also an outer flap provided with a separable tear-out section overlying said tongue and ears, the upper faces of said tongue and ears being coated with an adhesive repellent material so that said tear-out section may be removed without disturbing said tongue and ears, the inner flap being provided on its upper face with a continuous area surrounding said tongue and ears and devoid of adhesive repellent material so that said outer flap may be adhesively secured to said area to form a sift-proof seal.

7. A carton as defined in claim 6 in which said tongue is adapted to be adhesively secured to the underside of said tear-out section.

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