

April 14, 1953

M. BORD

2,634,897

PORING SPOUT FOR CARTONS

Filed Oct. 18, 1947

2 SHEETS—SHEET 1

Fig. 1.

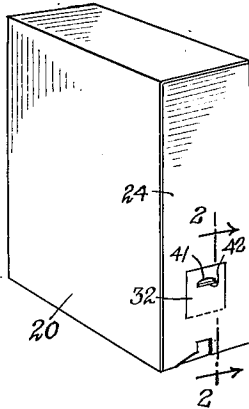


Fig. 2.

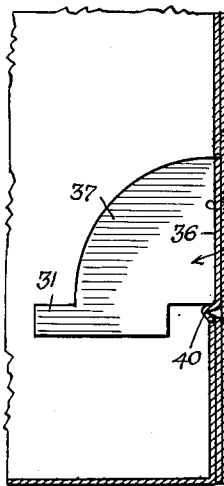


Fig. 3.

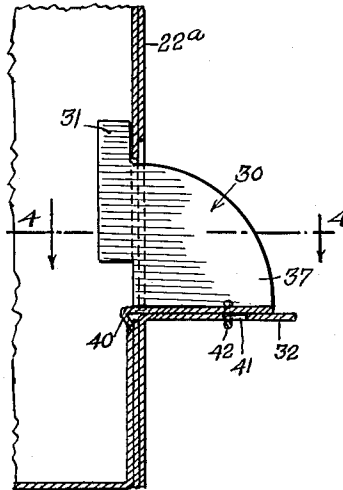


Fig. 4.

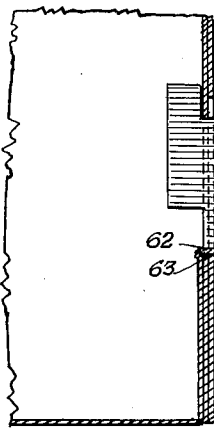


Fig. 5.

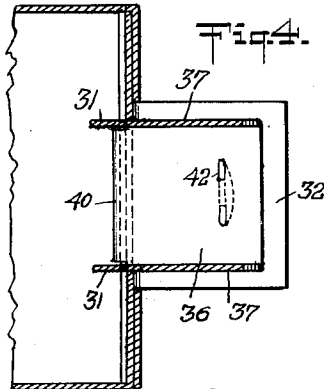
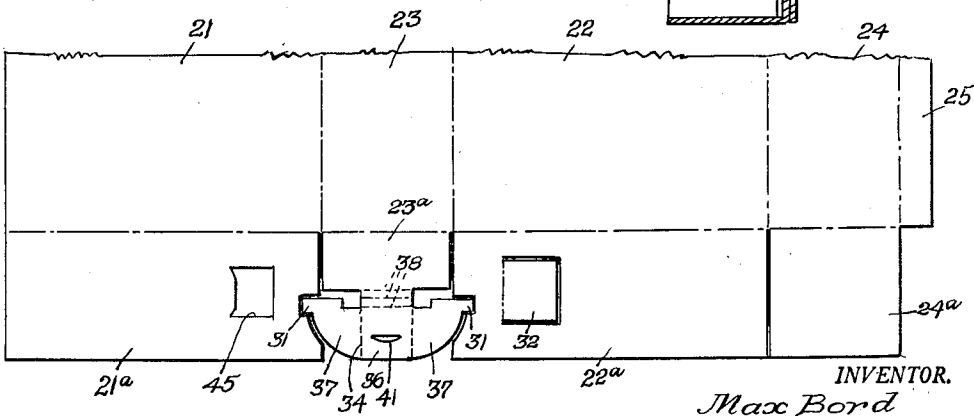


Fig. 6.



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2 SHEETS—SHEET 2

Fig. 7.

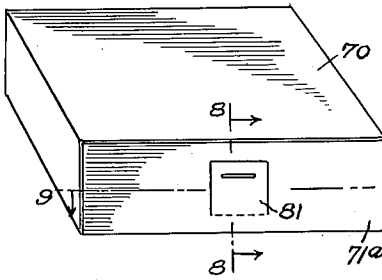


Fig. 8.

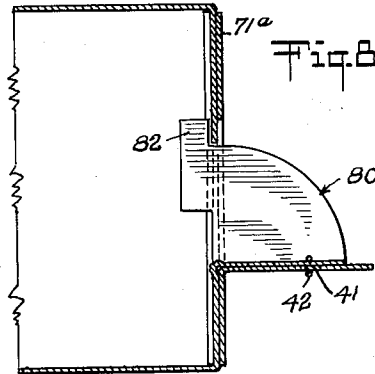


Fig. 9.

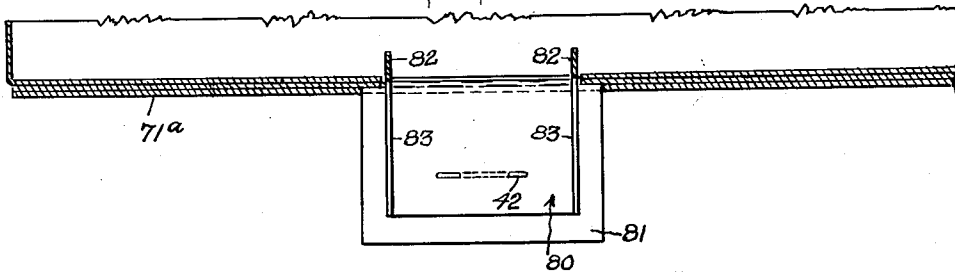
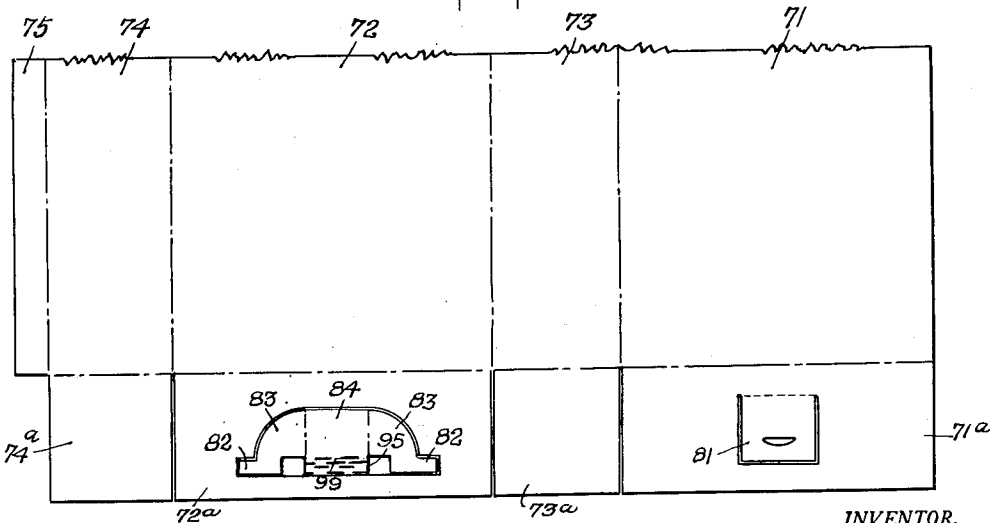


Fig. 10.



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POURING SPOUT FOR CARTONS

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1 Claim. (Cl. 229—17)

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This invention relates to cartons and similar types of container which are used in the packaging of foodstuffs and other substances in powder, granular, flake and other forms which may be poured through a dispensing spout.

The principal object of this invention is the provision of an improved dispensing spout construction in a carton of the character above described which has marked advantages over conventional pouring spouts from a constructional point of view as well as from a utilitarian point of view, whether the spout is in closed or open position. Among the advantages which are inherent in the improved spout forming the subject matter of this application, are the following:

a. The spout opens wider in the present construction than in the constructions heretofore known or patented. In conventional spout constructions the spout opens less than 90° with respect to its closed plane, whereas in the present invention the spout opens fully 90°.

b. The spout under discussion is provided with an improved hinge connection to the carton proper which enables it to be opened a full 90° without any measurable tendency to spring back to closed position once it is released.

c. In the spout construction of the present invention there is an ample seal on all four sides of the spout with respect to the carton proper when the spout is in closed position. In conventional constructions a seal is provided at the hinged side and at the side opposite the hinged side, but no adequate seal is provided on the remaining two sides. When the spout herein described is closed, the contents of the carton are sealed against contamination caused by the introduction of foreign matter. In present constructions the sides of the spout and more particularly of the spout cover are not supported by any of the flaps or any other portion of the carton. Hence, when the spout is lifted into open position and then pushed back into closed position, it very frequently happens that the spout and its cover are caused to sag somewhat in the middle and to fall slightly below the level of the adjacent flap edges. A space is thereby formed between the edges of the flaps on the one hand and the edges of the spout cover on the other hand and access is thereby provided to the contents of the carton by vermin and other contaminating elements. In the present construction, however, adequate support is provided on all sides of the spout cover and there is no possibility, therefore, that it may sag in the middle to provide an opening or passageway for vermin.

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These and other advantages are inherent in the present invention as will become obvious from an examination of the drawing in which—

Fig. 1 is a perspective view of a preferred embodiment of the invention showing the pouring spout in closed position;

Fig. 2 is an enlarged fragmentary sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a view similar to that of Fig. 2 showing the pouring spout in open position;

Fig. 4 is a fragmentary section on the line 4—4 of Fig. 3;

Fig. 5 is a fragmentary plan view of a blank which may be used in making a carton such as is shown in the first four figures of this drawing;

Fig. 6 is a view similar to that of Fig. 3 showing a second means and method of hingedly connecting the pouring spout to the body of the carton;

Fig. 7 is a perspective view of another preferred embodiment of this invention;

Fig. 8 is a view similar to that of Figs. 3 and 6, said view being a section on the line 8—8 of Fig. 7;

Fig. 9 is a view substantially similar to that of Fig. 4, said view being a section on the line 9—9 of Fig. 7; and

Fig. 10 is a view similar to that of Fig. 5 showing the blank of which the embodiment shown in Figs. 7 to 9 inclusive may be made.

Referring now to the first five figures of the drawing, it will be seen that the invention under discussion is applied to a conventional folding box or carton 20 which may be made in any conventional size and shape and of any conventional material. The particular carton depicted in the drawing, see Fig. 5, is provided with two wide sides 21 and 22 and two narrow sides 23 and 24. When the box is set up, the narrow sides face each other in parallel planes and they are perpendicular to the wide sides 21 and 22 which also face each other in parallel planes. The flap 25 which adjoins side 24 overlaps a part of wide side 21 and is used for affixing sides 21 and 24 to each other. Adhesive or any other conventional affixing or adhering means may be used. It will be noted in Fig. 5 that each of these four sides is provided with an adjoining flap of corresponding width: Flap 21a adjoins flap 21; flap 23a adjoins flap 23; flap 22a adjoins flap 22 and flap 24a adjoins flap 24. These flaps are folded over, when the box is set up, in the usual manner. Flaps 23a and 24a are folded over first until they lie in a common plane. Flap 21a is then folded over upon them and finally flap 22a is

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folded over upon flap 21a. The top flap, therefore, is flap 22a; the intermediate flap is 21a, and the bottom flaps are flaps 23a and 24a, respectively.

The pouring spout 30 is cut out, for the most part, from flap 23a. Its stop members 31 are cut out, however, from flaps 21a and 22a, and its cover member 32 is cut out of flap 22a.

Reference to Fig. 5 will show a pair of parallel dotted lines 34. These are folding lines which separate the floor 36 of the spout from its two side walls 37. Three additional parallel dotted lines 38 are shown, these lines being perpendicular to lines 34, and it will be apparent that these three parallel lines are also folding lines from which the fold 40 (see Fig. 3) may be formed. These fold lines 38 may be formed by creasing or scoring the material to permit it to be folded or lapped at this point to act as a hinge without breaking. This fold is the hinge connection between the spout 30 and the rest of the box. It will also be noted that the stop members 31 aforementioned form part of the side walls 37. Floor 36 is provided with a cut-out 41 which co-operates with a staple 42 to provide a nail catch by which the spout may be swung out of the box into open position. Flap 21a will be seen to be provided with a cut-out 45 which serves as the window or opening through which the spout may be brought into open position and through which the contents of the box may be poured.

When the box is set up, as shown in the first four figures of the drawing, the side walls 37 are folded on folding lines 34 until they are parallel to each other and perpendicular to the floor 36. The stop members 31 remain in a common plane with the side walls. The cover member 32 becomes superimposed upon the floor member 36 and the staple 42 aforementioned is used to affix said floor to said cover. Other conventional means of affixing these two members to each other may also be used.

It will be noted that side walls 37 are provided with curved edges which are substantially equidistant at all points from the fulcrum of the spout, that is, from its hinged point. This enables the spout to move into and out of the box through opening 45. It will be noted in Fig. 3 that the stop members 31 prevent the spout from opening beyond a predetermined point by reason of their engagement with flap 21a. At the predetermined point the floor 36 of the spout extends at an angle of approximately 90° to the flap 22a. In Figures 3, 5 and 8, it will be clear that the area of the side walls of the spout is in the shape of a quarter circle with the floor of the spout along one edge of this area and the stop elements along the free edge at right angles to the floor. It is also to be noted that the entire area of the stop element lies outside of this quarter circle so that the edge of the element 31 acting as a stop, will permit this spout to be opened to a full 90° from its closed position.

It will be seen in Figs. 2, 3 and 4 that the cover tab 32 is larger than the cut-out 45 so that when the spout is brought into closed position, as shown in Fig. 2, the edges of flap 21a immediately surrounding three sides of the opening 45 serve as a stop for the three free side edges of the cover tab 32. In other words, when the spout is in closed position, the cover tab 32 is supported on its hinged side by flap 22a out of which it is cut, and it is supported on its remaining three sides by the flap 21a.

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Among the important features of the invention thus far described are the following:

a. In view of the fact that the stop members 31 are offset from the fulcrum of the spout, the spout may be opened a full 90°.

b. The fold 40 provides a very satisfactory hinge for the spout so that the spout may be swung into open and closed position as many times as may normally be necessary to empty the contents of the container, without breaking off as a result of such use. There is so little strain on the fold connection between the spout and the box proper when the spout is opened a full 90°, that it displays no tendency to swing back into closed or partly closed position immediately upon its release.

c. The overlapping side edges of cover tab 32, as shown especially in Fig. 4, all rest upon corresponding portions of flap 21a immediately surrounding the cut-out 45 in said flap. This provides an excellent seal between the cover tab 32 and the box proper when the spout is in closed position, thereby preventing the entry or introduction of foreign substances into the box.

In Fig. 6 a different type of hinge construction is shown. In this figure the fold 40 is eliminated and floor member 60 of spout 61 bends over along a multiple folding line 62 which is more fully shown in connection with the embodiment disclosed in Figs. 7 to 10 inclusive of the drawing. What is said of the fold in the embodiment shown in Figs. 7 to 10 is equally true of the fold shown in Fig. 6.

Reference to Figs. 7 to 10 inclusive discloses another form of this invention. In this embodiment of the invention the carton 70 is provided with a spout which is located centrally of one of its sides. In the first embodiment the spout was not located centrally of any one side. Carton 70 is provided with wide sides 71 and 72, respectively and with narrow sides 73 and 74, respectively, and narrow side 74 is provided with a flap 75. Connected to side 71 is a wide flap 71a; connected to side 72 is a flap 72a; connected to side 73 is a flap 73a; and connected to side 74 is a flap 74a. Thus far carton 70 corresponds in every essential respect to carton 20. The spout 80, however, in the present embodiment is cut out of flap 72a and its cover tab 81 is cut out of flap 71a. Spout 80 is provided with stop portions 82 corresponding to the stop portions 31 of the first embodiment. It is provided with side walls 83 which correspond to the side walls of the first embodiment, and it is provided with a floor portion 84 which corresponds to the floor portion of the first embodiment. As is the case with the first embodiment here, too, the cover tab 81 is larger than the floor area of the spout proper. Hence, there is an overlapping as is clearly brought out in Fig. 9.

When carton 70 is folded along its several fold lines and is set up as shown in Figs. 7 to 9 inclusive, the innermost flap is flap 72a. Resting upon said flap are the small side flaps 73a and 74a. And resting upon said side flaps is the large flap 71a. The floor 84 of the spout is affixed to the cover tab 81 in the manner above described, as for example, with a staple 42. It will be seen in Figs. 8 and 9 that the spout extends through the space between the two side flaps 73a and 74a, as well as through the opening formed in flap 71a when the cover tab 81 is raised therefrom.

At this point it should be stated that flaps 73a and 74a may be folded over before the other flaps are folded so that these two side flaps may be-

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come the bottommost or innermost flaps. Flap 72a would then rest upon these two flaps and flap 71a would become the top flap.

Referring back to the construction where the two side flaps 72a and 74a are sandwiched-in between the two larger flaps 71a and 72a, it will be seen that the overlapping side edges of the cover tab 81 rest on the two small flaps 73a and 74a as well as, to a less marked extent, upon the large flap 72a. Thus it will be seen that the cover tab 81 is supported on all four sides when the spout is in closed position as is true of the cover tab in the first embodiment. On one side the cover tab is integral with flap 71a; on the opposite side it is supported by flap 72a; and on its remaining two sides it is supported by flaps 73a and 74a. The floor 84 of the spout is, of course, attached to the cover tab in the manner above described in respect to the first embodiment.

The method of hingedly connecting the floor of the spout to the flap with which it is integral which was used in connection with the form of this invention shown in Fig. 6, is also used in connection with the present form of this invention. It will be seen in Fig. 10 that a narrow neck 95 connects the floor 84 of the spout to the flap 72a. This narrow strip 95 is provided with a plurality of spaced staggered slits 99 which extend transversely thereof. These slits render the strip 95 expansible to a limited extent. It is by reason of the provision of slits 99 therein that the connection between the floor of the spout, and the tab with which it is integral, is enabled to stretch and to bend without tearing or breaking and thereby to constitute suitable material for a hinging action.

The advantages above outlined with respect to the first embodiment of this invention are equally applicable to the second embodiment last above described.

It will be apparent from the foregoing that the present invention constitutes a substantial advance in a very crowded art, and that it is susceptible of different modifications to produce many embodiments other than those herein shown and described, all, however, being within the spirit and scope of the invention.

I claim:

A pouring spout for a paper carton having two

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large and two small flaps on one end thereof, said small flaps lying on a common plane and said larger flaps being superimposed upon said smaller flaps and lying in parallel planes with said smaller flaps, a portion of one of said smaller flaps being partly cut out from said flap and being bent to form a spout having a floor and two side walls, said floor being connected to said flap by a connecting portion which is integral with both the flap and floor, said connecting portion being scored with parallel lines to permit it to act as a hinge and further being spaced apart from said floor whereby said connecting portion is rendered expansible and contractable so that the spout may be swung pivotally into open or closed position, a four sided opening in each of the two large flaps through which the spout may be moved into open or closed position, the opening in the outer large flap being greater than the opening in the inner large flap, extensions on the side walls of said spout, said extensions being cut out from the two larger flaps but being integrally connected to said side walls, said extension comprising stop members which engage the inner of the two larger flaps when the spout is swung 90° into open position, a cover tab for said spout, said tab being a portion of the outer large flap and partly cut out therefrom, said cover tab being affixed to the floor of the spout and being larger than said floor whereby outwardly extending flanges are formed on said cover tab on three sides thereof, said flanges being engaged by the inner large flap along the edges formed therein when the spout is brought into closed position whereby said cover tab is supported on three sides by the inner large tab.

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