April 16, 1963 M. BORD 3,085,732

CARTON POURING SPOUT

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Fig. 1.

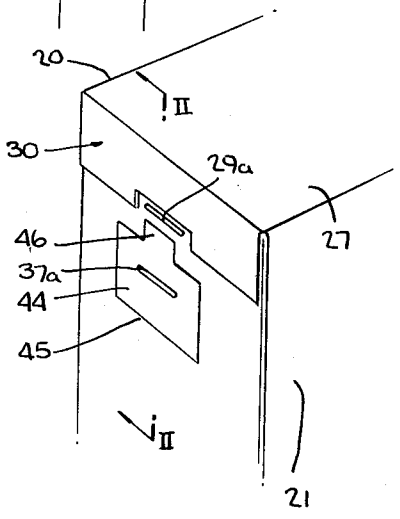


Fig. 2.

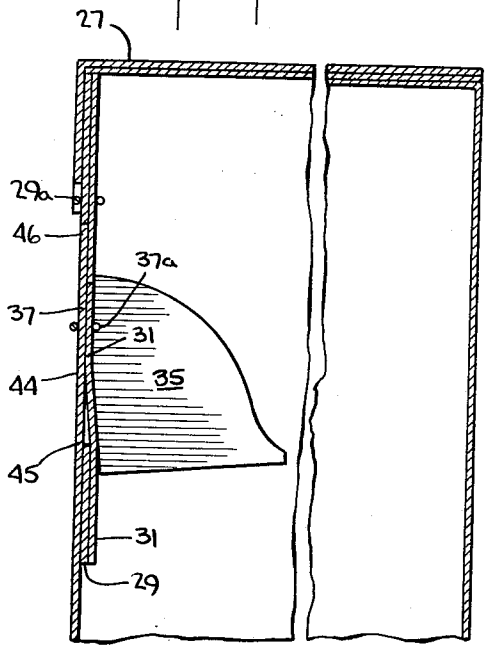
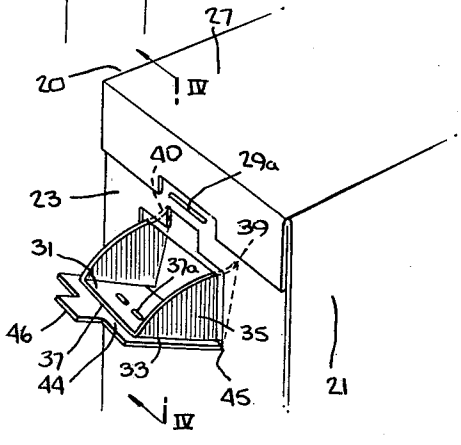


Fig. 3.



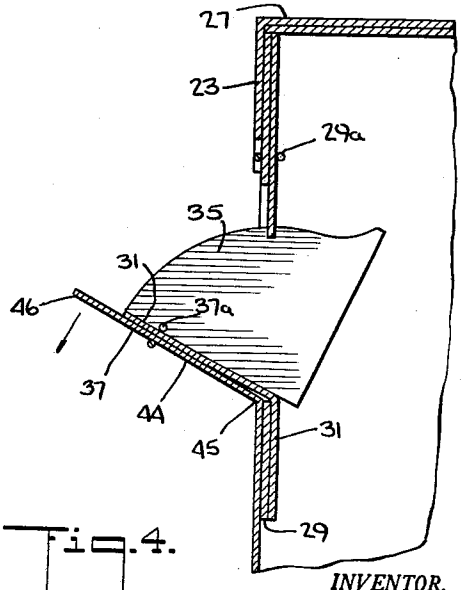


Fig. 4.

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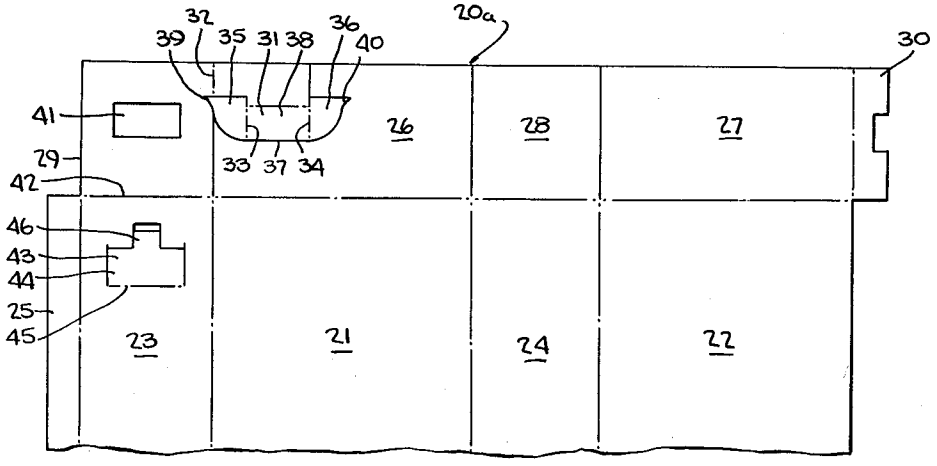

Fig. 5.

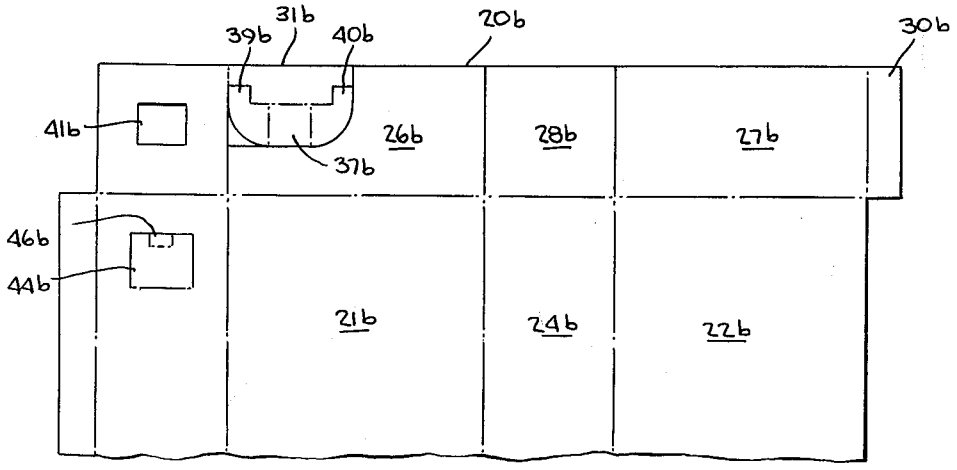

Fig. 6.

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CARTON POURING SPOUT

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Fig. 7.

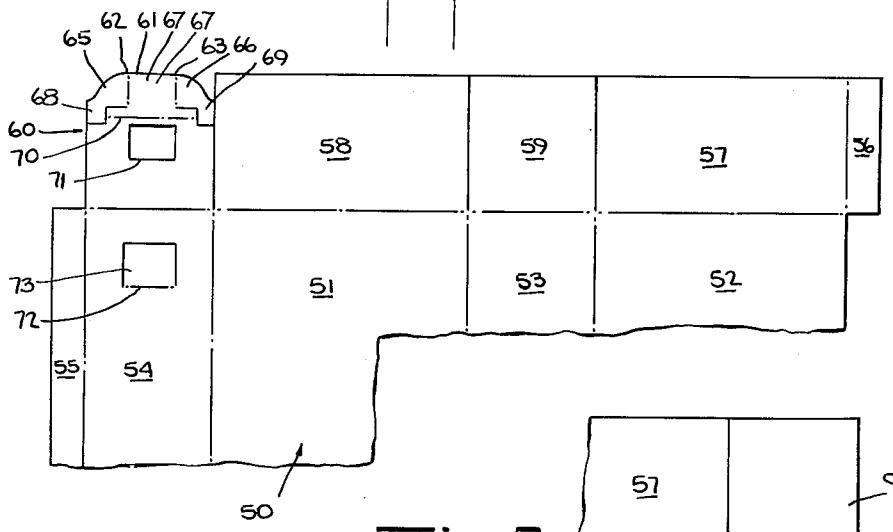
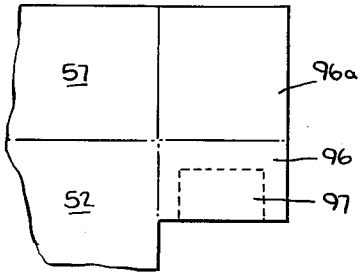


Fig. 9.



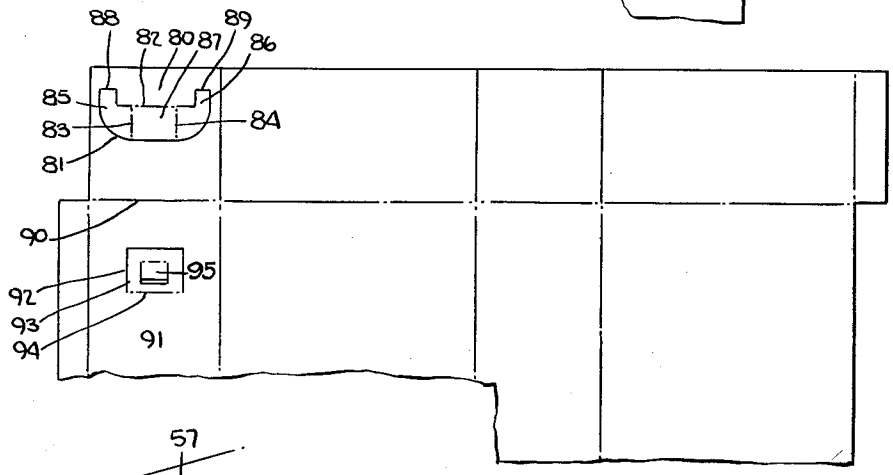


Fig. 8.

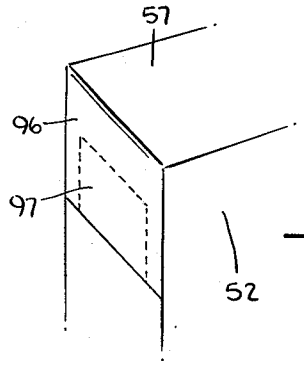


Fig. 10.

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CARTON POURING SPOUT

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2 Claims. (Cl. 229—17)

This invention relates to cartons and similar types of containers with pouring and dispensing spouts, used in the packaging of substances which are susceptible of being poured through such dispensing spouts.

It more particularly relates to an improved form of a dispensing and pouring spout which is an integral part of paper or paperboard cartons and similar containers.

The principal object of this invention is the provision of an improved dispensing spout construction in a carton of the character described above which has marked advantages over prior art pouring spouts from a constructional and utilitarian point of view.

It is an object of this invention to provide in combination, a carton and pouring spout which may be assembled with greater efficiency and facility. This efficiency is achieved by virtue of the design of the carton and spout of this invention which enables said spout to be formed in all respects at the place and at the time the carton is being die cut and prior to shipment to the party that assembles and fills the carton. This is made possible by the fact that the spout can be formed in all respects prior to assembly of the carton and the fact that the carton can be shipped flat after the spout is formed. Spouts of the prior art had to be formed at the time and place where the carton was assembled because certain necessary operations in their formation could not be done until the carton was assembled and because they could not be economically shipped after assembly. Such spout formation at this point of carton assembly requires machinery and operations which make such prior art spouts impractical from an economic standpoint.

These and other objects of this invention will become apparent from an examination of the drawings, in which:

FIG. 1 is a perspective view of an embodiment of this invention showing a fragmentary view of a carton with the pouring spout in a closed position;

FIG. 2 is an enlarged fragmentary sectional view of FIG. 1, on the line II—II thereof;

FIG. 3 is a view similar to that of FIG. 1 with the pouring spout in the open position;

FIG. 4 is a fragmentary sectional view of FIG. 3, on the line IV—IV thereof;

FIG. 5 is a fragmentary elevational view of the carton blank used in the embodiment of the invention shown in FIGS. 1–4;

FIG. 6 is a fragmentary elevational view of a modification in the carton blank usable in the embodiments of the invention;

FIG. 7 is a fragmentary elevational view of a carton blank of another embodiment of this invention;

FIG. 8 is a fragmentary elevational view of a carton blank of still another embodiment of this invention;

FIG. 9 is a fragmentary elevational view of a carton blank having another feature of this invention; and

FIG. 10 is a fragmentary elevational view of the assembled carton formed from the FIG. 8 blank showing an external closure over the spout.

Referring now to FIGS. 1, 2, 3, 4 and 5, the number **20** refers generally to a carton which may be made in any desired size and of any conventional material. The particular carton shown in FIG. 5 has two wide sides **21**, **22** and two intermediate narrow sides **23**, **24** alternately disposed. When the box is assembled as depicted in FIG. 1, the narrow sides are in parallel planes opposite each other, and are perpendicular to the two large

sides **21**, **22** which are also disposed in opposing parallel planes. The flap **25**, adjoining side **23** overlaps the wide side **22**. Said flap **25** is used to affix side **23** to side **22** when the carton blank **20***a* is assembled. Usually an adhesive material is placed on flap **22** which will effect a seal, but other convenient means for affixing flap **25** to side **22** such as stapling may be used.

Each of the respective sides of said carton blank **20***a* have flaps hingedly attached to each of said sides. Thus, said carton blank **20***a*, has two large flaps **26**, **27** and two small flaps **28**, **29** disposed as indicated on sides of corresponding lengths; flap **27** adjoins side **22**, flap **28** adjoins side **24**, flap **26** adjoins side **21**, and flap **29** adjoins side **23**. Large flap **27** is provided with a flap **30** to which an adhesive material is applied, and which is used to affix said flap **27** to side **23** when said carton blank **20***a* is assembled.

The flaps **26**, **27**, and **28** are folded over, in the usual manner when the box is assembled. Flap **28** is folded over first, then flaps **26** and **27** are folded over, to lie in a common plane superimposed on flap **28**. Thus, in the assembled carton **20**, the flap **28** is at the bottom, over which flaps **26** and **27**, respectively, are superimposed and affixed together with conventional adhesive means. Flap **29** is folded down into the plane of side **23** and attached thereto.

A pouring spout flap **31** is cut out of flap **26** before assembling carton blank **20***a*. In the embodiment shown in FIG. 5, a portion of said spout flap **31** is also cut from said small flap **29**. Spout flap **31** is hingedly connected to said small flap **29** along the hinge line **32**.

Spout flap **31** is scored and bent along lines **33** and **34** forming hinges at those places, which lines thus form and define side walls **35**, **36** of the pouring spout generally referred to as **37**. A floor **38** of said spout **37** is situated between said side walls **35** and **36**.

Extensions **39** and **40**, disposed at the extremes of the side walls **35**, **36** are stop members, the function of which will be described below.

Small flap **29** is provided with a rectangular aperture **41** whose size is equal to that of the floor **38** of spout **37**. The location of said aperture **41** is such that it will be congruent with said floor **38** when said spout flap **31** is bent along its hinge **32** and superimposed upon the outside surface of said small flap **29**.

Said spout flap **31** is folded as indicated above. Small flap **29** is folded inwardly along its hinge line **42** and is superimposed upon the interior surface of side **23**. Spout flap **31** and small flap **29** are then affixed to side **23** by adhesive or by a staple **29***a* as shown in FIGS. 1–4.

Side **23** is provided with a rectangular wall aperture **43** in juxtaposition with the aperture **41** and the floor **38** of the spout **37**. Integral with side **23** and cut from the aperture **43** is a cover flap **44** fitting in said aperture **43**. Flap **44** is hingedly connected to side **23** along hinge line **45**. Flap **44** may also be provided with an integral tab **46** which the operator may use to open the flap **44** without interfering with the complete closing of the flap **44** when the spout is not in use.

The floor **38** of said spout **37** is affixed to the cover flap **44** by adhesive or by staple **37***a* shown in FIGS. 1–4. The size of the cover flap **44** is somewhat larger than that of aperture **41**. This will prevent an operator pushing the cover flap **44** into the box, which would render the pouring spout inoperative. This also serves to seal all sides of the spout when in closed position.

In order to operate the spout, one grasps the tab **46** and pulls the flap **44** and spout **37** outward to its fully-outwardly disposed position, which places the spout at an angle of approximately 90° from its closed position and presents the maximum opening that is possible with

the closure out of the path of the opening. The extensions **39** and **40** of side walls **35** and **36** are stopping members which engage the top rim of the aperture **41** when said spout is in its fully opened position. Said extensions **39** and **40** thus prevent one from pulling the spout **37** entirely out of the carton **20**, rendering it inoperative.

The salient feature of this embodiment of the invention is that the spout **37** may be cut out, bent and affixed to the small flap **29** and to the cover flap **44** prior to the assemblying or setting up of the carton **20**. This makes it feasible to form the spout subsequent to cutting the carton blank but prior to shipping this blank flat to the party who assembles and fills it. This vastly improves the overall assembling process, and results in greater speed, efficiency and economy in the overall production and use of cartons. Further, the spout is formed from within the confines of the blank thus economizing on material.

Referring to FIG. 6, a modification in the design of the primary embodiment of the invention is depicted. In this design the spout flap **31***b* is cut entirely from the large flap **26***b*. The extension members **39***b* and **40***b* are of a slightly different configuration. The carton blank **20***b* is assembled in the same fashion as that of carton **20***a* of the primary embodiment described above. The extension members **39***b* and **40***b* function by camming against the rim of the aperture **41***b*, preventing further opening of the spout **37***b* when it is approximately 90° away from its closed position. The cover flap **44***b* of this modification has a tab **46***b* which is hingedly connected and fits into said flap **44***b* as indicated in FIG. 6.

Referring to FIG. 7, another embodiment of this invention is depicted. The carton blank **50** has conventional configuration: two large sides **51**, **52** and two small sides **53**, **54** alternately disposed, together with flaps **55** and **56** to which an adhesive is applied and which serve to hold the assembled carton together. Flap **55** joins side **54** to side **52**. Flap **56** joins side **54** to flap **57**. Hingedly adjoining each side are large flaps **57**, **58** and small flaps **59** and **60**.

The terminal portion of small flap **60** is cut to form a spout flap **61**. Hinges **62**, **63** of said spout flap **61** are fashioned by scoring and bending along lines **62**, **63**. A spout **64** is thus formed from spout flap **61** and comprises two side walls **65**, **66** and a floor **67**. Extension members **68**, **69** are formed at the extreme corners of the side walls **65**, **66**.

A score line is made at **69** and **70**. The entire spout flap **61** is folded along line **70** and is superimposed upon the outer surface of said small flap **60**. A rectangular aperture **71** is cut in said small flap **60**, in juxtaposition with the floor **67** of said spout **64** and congruent therewith.

The small flap **60** is folded inwardly and is superimposed upon the interior surface of side **54**. The small flap **60** is affixed to side **54**.

Side **54** is provided with a rectangular wall aperture **72** in juxtaposition with said floor **68** of said spout **64** and said aperture **71**. Wall aperture **72** is provided with a cover flap **73** which is hingedly connected to the base of said wall aperture **72** and said cover flap **73** is affixed to the floor **68** of said spout **64**. This cover flap **73** is somewhat larger than aperture **71**.

The spout **64** functions in a manner similar to that described earlier with respect to the primary embodiment, the line **69** providing the hinged connection on which line the spout **64** pivots as it functions.

The construction of the embodiment just described permits the affixing of the floor **68** of said spout **64** to the cover flap **73**, and the small flap **60** to the side **54** before the carton blank is assembled. As in the primary embodiment, this permits formation of the spout prior to assembly of the carton with its consequent advantages.

In this embodiment flap **56** may be lengthened to cover the spout **64** when assembled to thus provide a seal extending over the spout prior to initial use of the assembled carton and spout.

FIG. 8 depicts a carton blank of still another embodiment of this invention incorporating the constructional and utilitarian advantages described earlier. In this embodiment, the spout **80** is cut from the central portion of the small flap **81**. Score lines are made, as shown at **82**, **83** and **84**. Line **82** defines a hinge upon which the actual functioning of the spout **80** depends. Lines **83** and **84** define hinges which in turn form side walls **85**, **86** and floor **87** of spout **80**. Extension members **88** and **89** are formed in spout **80** when said spout is cut from the flap **81**.

Flap **81** is folded inwardly along line **90** and superimposed and affixed to side **91**. There is cut in side **91**, a rectangular aperture **92** in which fits a cover flap **93** which is hingedly connected to the bottom of said aperture **90** at hinge line **94**. Hinge line **94** is in juxtaposition and parallel with the hinge line **82** of said spout **80**, and the aperture **92** is likewise in juxtaposition with the floor **87** of said spout **80**.

The floor **87** of said spout **80** is affixed to the cover flap **93** and the carton is assembled in the conventional manner. The cover flap **91** may also be provided with a tab **95** to facilitate opening of the spout **80**. The said spout **80** functions in a manner similar to that described above for the other embodiments of this invention and pivots on hinge line **82** from its closed to its fully open position, at an angle of approximately 90° relative to said closed position.

FIGS. 9 and 10 show another feature of the present invention which can be used with any of the embodiments thereof. Referring to FIG. 9 a closure flap **96** is cut adjacent the large side **52** which, when the carton is assembled, as shown in FIG. 10, folds over and is attached around its periphery to the small side containing the spout to cover the spout and thus seal it prior to use. When the user desires to open the spout for the first time he simply removes the serrated portion **97** in the flap **96** to thus expose the spout for use. Further, in this embodiment flap **96***a* replaces flap **56** in the FIG. 7 embodiment and provides for assembling the top of the box in the ordinary manner using flap **96***a* and **59** in the ordinary manner to support superimposed flaps **57**, **58**. Still further, if flap **96** is extended the full height of the carton then the carton can be assembled without need for flap **55**.

It will be appreciated that the spout of this invention can be formed in the large as well as the small side of the carton in the same manner as described above if the manufacturer desires such a spout placement to permit a larger size thereof or for any other reason. It will also be appreciated that the spout in the assembled carton may be sealed with an ordinary wax paper overlay to prevent the penetration of contaminants prior to first use.

Having thus described my invention, I claim:

1. In combination, a paper carton and pouring spout, said paper carton having alternately two large and two small flaps on one end thereof, said large flaps being superimposed upon the first of said small flaps, a portion of the second of said small flaps being cut out therefrom defining an inner aperture, a portion of one of said large flaps closest to said second small flap being cut out from said large flap and defining a spout flap, said spout flap hingedly connected to and forming an integral part of said second small flap, said spout flap being folded over to be attached to the said second small flap, said spout flap being bent to form a spout having a floor and two side walls, said floor hingedly connected to said spout flap, said second small flap folded down against and attached to a wall of said paper carton, said wall having an aperture and a cover flap fitting in said wall aperture and hingedly connected to an edge of said aperture, said wall aperture in juxtaposition to said spout and said hinge of said spout

in juxtaposition to the hinge of said cover flap and said floor of said spout attached to said cover flap such that said spout may be moved into open and closed position through said inner and wall apertures.

2. A pouring spout for a paper carton having alternately two large and two small flaps on one end thereof, said large flaps being superimposed upon the first of said small flaps, a portion of the second of said small flaps being cut out therefrom, defining an inner rectangular aperture, a portion of one of said large flaps closest to said second small flap being cut out from said large flap and defining a spout flap, said spout flap hingedly connected to and forming an integral part of said second small flap, said spout flap being folded over to be superimposed upon and attached to the outer surface of said second small flap, said spout flap being bent to form a spout having a floor and two side walls, said floor being hingedly connected to said spout flap, said second small flap being folded down against and attached to the inside wall of said paper carton to which said second small flap is hingedly connected, said wall having a rectangular wall

aperture and a cover flap fitting in said wall aperture and hingedly connected to an edge of said aperture, said wall aperture in juxtaposition with said spout and said hinge of said spout in juxtaposition with the hinge of said cover flap such that said spout may be moved into open and closed position through said inner and wall apertures, said floor of said spout attached to said cover flap, said wall aperture larger than the said aperture of said second small flap, integral extensions on the side walls of said spout, said extensions comprising stop members which cam against the perimeters of said rectangular apertures when said spout is swung out to about 90° into the open position, a tab for said cover flap and spout, said tab being an integral portion of said outer rectangular flap and partly cut therefrom.

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