April 15, 1969 J. F. LA PIERRE 3,438,555

POURING SPOUT FOR CARTON STRUCTURES

Filed Oct. 16, 1967

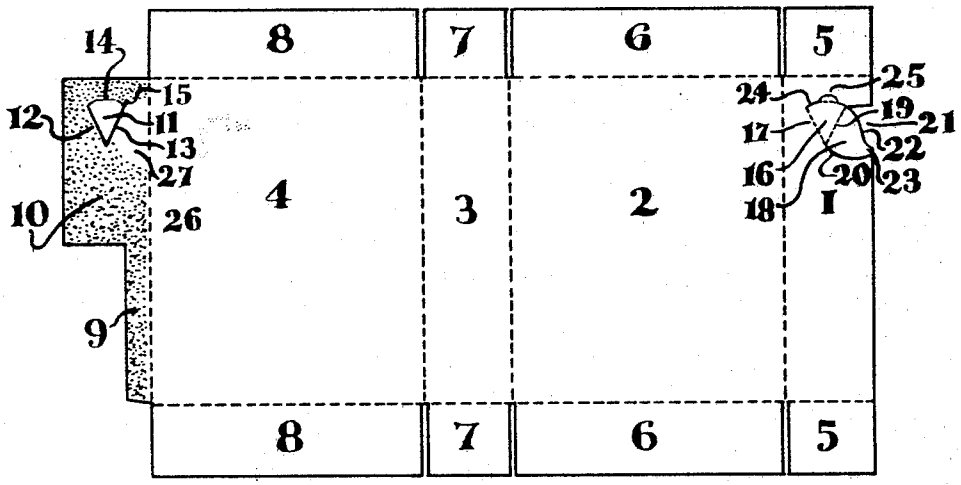



Fig. 1

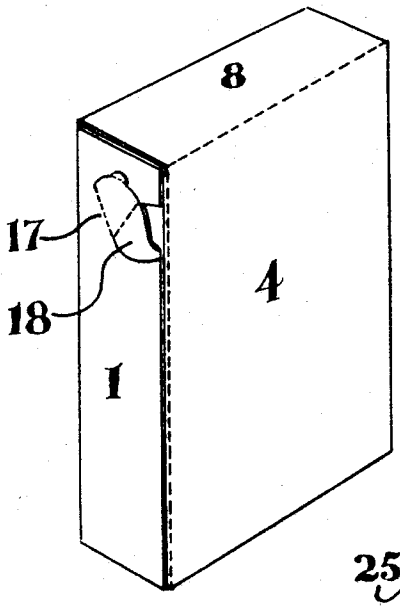



Fig. 2

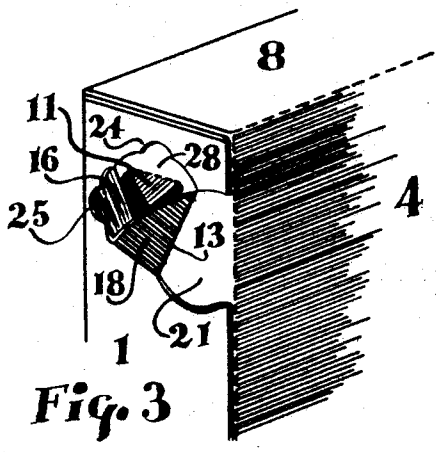



Fig. 3

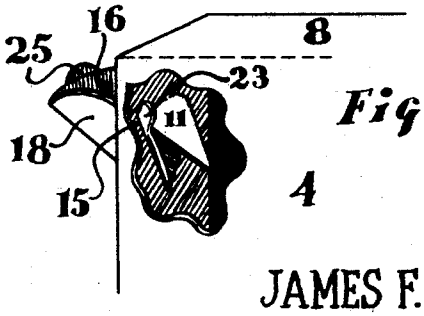



Fig 4

INVENTOR/S

JAMES F. LA PIERRE

BY *Melville, Strasser, Foster and Hoffman*
ATTORNEYS

United States Patent Office 3,438,555
Patented Apr. 15, 1969



3,438,555

# POURING SPOUT FOR CARTON STRUCTURES

James F. La Pierre, Middletown, Ohio, assignor to The Interstate Folding Box Company, Middletown, Ohio, a corporation of Ohio

Filed Oct. 16, 1967, Ser. No. 675,419
Int. Cl. B67d 3/04; B65d 47/08
U.S. Cl. 222—528 8 Claims

## ABSTRACT OF THE DISCLOSURE

An integral pouring spout structure for a paperboard carton in which the pouring spout is formed from wall portions of the carton structure, the glue flap of a conventional tubular carton being extended in the area of the pouring spout to provide an inner wall panel having an inwardly displaceable flap defining a V-shaped dispensing opening, the overlying body wall panel having a cut and scored V-shaped spout part juxtaposed to the displaceable flap, therebeing a second spout part hingedly connected to one side edge of the first spout part, the two spout forming parts being displaceable outwardly from the plane of the body wall panel to expose the inwardly displaceable flap, whereupon the spout defining parts are foldable relative to each other to define a spout, the second spout part being slidably engageable with a side edge of the dispensing opening and having a tongue engageable inwardly of a corner edge of the dispensing opening to establish the erected position of the spout, the spout parts, once assembled, being displaceable inwardly to reclose the dispensing opening.

### *Background of the invention*

While numerous types of pouring spout structures have heretofore been proposed for dispensing the contents of paperboard cartons, those which have been formed from paperboard have suffered such difficiencies as the inadequacy of the paperboard parts to define a symmetrical spout which will effectively dispense the contents and which will be sufficiently rigid to withstand repeated opening and closing. In addition, many such paperboard spouts are difficult to open and close and often require a sharp instrument to sever or lift the parts.

While some of the disadvantages of paperboard spouts, such as lack of durability and rigidity, have been eliminated by utilizing metallic or plastic spouts, or foil lined parts, such constructions often require special machinery for their fabrication as well as added expense. In addition, increasing objections have been voiced by health authorities about the possible contamination of food products by metallic spout members and spout constructions wherein the contents of the container are not tightly and effectively sealed before use.

The instant invention alleviates the foregoing difficulties by providing a spout structure which, particularly when utilized with a lined carton, affords complete protection of the contents until the spout is opened and the liner ruptured by the inward displacement of the opening defining flap in the inner wall panel. The spout forming parts are readily accessible to the user without requiring a knife or other instrument to separate them from the carton body, and once the spout has been erected it is quite sturdy, as is the area of the carton in which it formed. A carton constructed in accordance with the instant invention does not require special machinery or equipment for its fabrication, nor are separate parts or attachments required which add to the cost of the carton.



### *Summary of the invention*

A one-piece tubular carton structure, preferably provided with a liner which is adhered to the inner surface of the inner wall panel about the periphery of the opening defining flap so that when the flap is displaced inwardly by the user pressing against it, the inward displacement of the flap will automatically sever the liner.

The spout itself, is formed entirely within the confines of the overlying body wall and is composed of two articulated parts which, when displaced from the plane of the carton body wall and folded relative to each other, define a symmetrical spout one side edge of which is hingedly connected to the carton and coincides with one leg of the V-shaped dispensing opening, the other side of the spout being in sliding engagement with the remaining leg of the V-shaped opening and being movable from an extended spout-defining position to a retracted position in which the second spout part lies within the confines of the carton body and the remaining part overlies and closes the dispensing opening. A tab is provided on the upper edge of the last named spout part to facilitate its engagement by the user's fingers to return the spout parts to their erected condition.

### *Description of the drawings*

FIGURE 1 is a plan view of a carton blank incorporating a pouring spout construction in accordance with the invention.

FIGURE 2 is a perspective view of the blank of FIGURE 1 in partially erected condition illustrating the relationship of the parts.

FIGURE 3 is a fragmentary perspective view illustrating the spout in erected condition.

FIGURE 4 is a fragmentary persepctive view with parts broken away illustrating the manner in which one side of the spout structure engages the inner surface of the carton body.

### *The preferred embodiment*

Referring first to FIGURE 1, the carton blank for forming a pouring spout carton in accordance with the instant invention comprises a sheet of boxboard cut and scored to define enclosing body walls **1**, **2**, **3** and **4** in side-by-side articulation in the order named; and at their opposite ends the body walls will be provided with conventional sets of end closure flaps **5**, **6**, **7** and **8** as will be readily understood by the worker in the art.

A longitudinally extending atttachment flap **9** is hingedly connected to the free side edge of body wall **4** by means of which the body walls are tubed to form a tubular body. In accordance with the invention, the flap **9** has an extension **10** which is of substantially the same width as the body wall **1** and defines an inner wall panel. This panel is provided with a generally V-shaped flap **11** the opposite side edges or legs **12** and **13** being defined by lines of cut, whereas its upper edge is defined by a cut-score line **14**. In addition, it will be noted that the line of cut **13** extends beyond the adjoining end of the cut-score line **14** to define a slit **15** which, as will be explained more fully hereinafter, is adapted to slidably receive an edge of one of the spout defining parts.

The pouring spout is formed in the carton body wall and comprises a generally V-shaped first spout part **16** hingedly connected to the body wall **1** along the line of articulation **17** which, in the erected structure coincides with the line of cut **12**. A second spout forming part **18** is hingedly connected to the part **16** along the inclined line of articulation **19** which is positioned, in the erected structure, to coincide with the line of cut **13**, the part **18** is separated from the body wall **1** by a rounded line of

cut 20 and a cutout portion 21 defined by a curved edge 22 which at its end defines a tongue or projection 23. The first tongue part 16 has an upper edge defined by the line of cut 24 which additionally defines a tab 25.

The carton blank just described will be folded and tubed in the usual fashion with the attachment flap 9 juxtaposed and adhesively secured to the inner surface of body wall 1 adjacent its free side edge. To this end, adhesive, indicated at 26, will have first been applied to attachment flap 9 and to inner wall panel 10 in the shaded areas, the adhesive, however, being omitted from the area 27 which includes the flap 11 and corresponds in location to the spout forming parts 16 and 18 together with the cutout portion 21. Consequently, when the attachment flap 9 and inner wall panel 10 are juxtaposed and adhesively secured to the inner surface of body wall 1, the parts will be securely adhered together, but the spout defining parts will remain unadhered to the underlying inner wall panel. If a tubular liner is to be associated with the carton blank, it will be understood that the liner will be adhered to the inner surface flap 11 and to the inner wall panel 10 in an area surrounding the flap 11.

The tubed carton structure and liner, if such is employed, will be closed and sealed at one end, filled through the opposite end, followed by the closing and sealing of the remaining end of the liner and the overlying end closure flaps. In such condition the carton structure is ready for consumer purchase and use.

In the hands of the consumer, when it is desired to dispense the contents of the carton using the pouring spout, the user has but to grip the spout forming part 23 with a finger, ready access to an edge of the part being had by reason of cutout 21. The two spout forming parts 16 and 18 will swing outwardly along the line of articulation 17, thereby exposing the underlying flap 11 which may be readily displaced inwardly by the user pressing a finger against it, the flap 11 folding inwardly along the cut-scored line 14. Where a liner is employed which is adhesively secured to the inner surface of flap 11 and to the inner wall panel 10 surrounding the periphery of the flap 11, the inwardly directed pressure on flap 11 will cause the liner to break cleanly along the sides of the flap defined by the lines of cut 12 and 13, thereby providing a dispensing opening. The spout defining parts 16 and 18 are then folded relative to each other along the line of articulation 19 and the outermost end of second spout part 18 is inserted into the dispensing opening, sliding along the cut edge 13. The dimensioning of the parts, is such that the length of the lines of articulation 17 and 19 is somewhat greater than the opposite sides of the dispensing opening, as defined by the lines of cut 12 and 13, with the result that the upper curved edge of spout forming part 22 will pass through and be guided by slit 15, which is formed in prolongation of the line of cut 13. Upon insertion of the spout forming part 18 in the manner described, the parts will assume the position illustrated in FIGURES 3 and 4, wherein it will be seen that the tongue or projection 23 on spout part 18 will lie to the inside of the carton body and engage the inner wall panel 10 immediately beyond the end of slit 15. A symmetrical pouring spout is thus formed by means of which the contents of the package may be readily dispensed. The spout structure is securely supported by the association of the spout part 18 with the cut edge 13 and its engagement in slit 15, and the entire spout area is strengthened and rigidified by the inner wall panel 10.

When it is desired to reclose the carton, the user has only to press inwardly on the spout along the folded edge defined by line of articulation 19, thereby causing the spout forming part 18 to move inwardly within the carton body, with the spout part 16 overlying and juxtaposed to the dispensing opening, the upper portion of spout part 16, including the tab 25 entering the recessed area 28 (FIGURE 3) defined by the exposed surface of inner wall panel 10 and the area of body wall 1 lying beyond the cut edge 24. In reclosing the spout, the user can readily deflect the tab 25 outwardly so that it may be readily engaged by the user's fingers to return the parts of the pouring spout to their erected or extended position.

As should now be apparent, the instant invention provides an integral pouring spout structure which may by readily opened and closed by the user while at the same time providing a strong and efficient spout structure. The construction of the spout is such that it may be added without any significant increase in the cost of the carton, and the carton may be fabricated using conventional folding and gluing equipment without special attachments or handling. Modifications may, of course, be made in the invention without departing from its spirit and purpose. For example, while the V-shaped flap formed in the inner wall panel is defined in part by lines of cut, as is the second spout forming part, such lines of cut may be readily replaced by lines for severance in which the parts are joined together by small interruptions at spaced apart intervals which are broken away as the parts are displaced from the planes of the panels in which they are formed.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An integral pouring spout structure for a paperboard carton having enclosing body walls, said structure comprising an inner wall panel juxtaposed to the inner surface of the first of said enclosing body walls, a dispensing opening in said inner wall panel defined by a displaceable flap the opposite side edges of which define the opposite side edges of said dispensing opening, said first enclosing body wall having a spout structure defined therein overlying said displaceable flap, said spout structure comprising a first spout part of generally V-shaped configuration hingedly connected to said first enclosing body wall along a line coinciding with one of the opposite side edges of said dispensing opening, a second spout part hingedly connected to said first spout part along a line coinciding with the other side edge of said dispensing opening, said second spout part having a projection remote from its hinged connection to said first spout part and being of a size to be inserted into said dispensing opening along the said other side edge thereof upon the outward folding of said first spout part relative to said first enclosing body wall and the inward folding of said second spout part relative to said first part along their line of hinged connection to each other, thereby defining a pouring spout for said carton, the projection on said second spout part engaging the inner surface of said inner wall panel beyond said dispensing opening.

2. The pouring spout structure claimed in claim 1 wherein a slit extends upwardly in prolongation of the said other side edge of said dispensing opening, and wherein said second spout part is of a size to have a marginal edge portion thereof engaged in said slit.

3. The pouring spout structure claimed in claim 2 wherein said first spout part is of a length greater than the length of said dispensing opening and projects upwardly beyond the upper edge of said dispensing opening when juxtaposed thereto, and wherein a tab is formed in the extending upper portion of said first spout part.

4. The pouring spout structure claimed in claim 3 wherein a cutout portion lies between the free side edge of said first enclosing body wall and an edge of said second spout part.

5. The pouring spout structure claimed in claim 1 wherein the carton is lined, and wherein the liner is secured to the inner surface of said displaceable flap and to said inner panel in an area surrounding said displaceable flap.

6. In a paperboard carton, a body wall, an inner wall panel underlying a portion of said body wall, a dispensing opening in said inner wall panel having V-shaped side edges, a pouring spout struck from said body wall, said pouring spout overlying said dispensing opening

and comprising a first spout part hingedly connected to said body wall along a line generally paralleling one side edge of said dispensing opening, a second spout part hingedly connected to said first spout part along a line generally paralleling the other side edge of said dispensing opening, said spout parts being foldable relative to each other and to said body wall to define a pouring spout for said carton, said second spout part having a projecting edge portion slidably engageable with the said other side edge of said dispensing opening, and interconnecting means for maintaining said second spout part in engagement with the said other side edge of said dispensing opening, said interconnecting means comprises a slit in said inner wall panel extending in prolongation of the said other side edge of said dispensing opening and a tongue on said second spout part engageable inwardly beyond said slit.

7. In a carton having juxtaposed inner and outer panels defining a wall of said carton and a flexible liner underlying said inner panel, a contoured flap formed in said inner panel, said contoured flap and the surrounding area of said inner panel being adhesively secured to said liner, a spout defining flap formed in said outer panel, said spout defining flap having a first part overlying and corresponding to said contoured flap and a second part hingedly connected to said first part, said outer panel being adhesively secured to said inner panel except for said spout defining flap, whereby when said spout defining flap is folded outwardly, said contoured flap is exposed and may be pressed inwardly to break said liner and form a dispensing opening, the parts of said spout defining flap being foldable relative to each other with said second part inserted in said dispensing opening to define a reclosable pouring spout for said carton.



8. The structure claimed in claim 7 including means connecting said second flap part to said inner wall panel upon insertion of said second flap part in said dispensing opening.

**References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 3,178,090 | 4/1965 | Connell | 222—528 X |
| 3,342,380 | 9/1967 | Smith | 222—529 X |


STANLEY H. TOLLBERG, *Primary Examiner.*

U.S. Cl. X.R.

222—556