

Sept. 19, 1944.

W. A. RINGLER

2,358,659

CARTON HAVING POURING SPOUT

Filed June 5, 1942

2 Sheets-Sheet 1

Fig. 1.

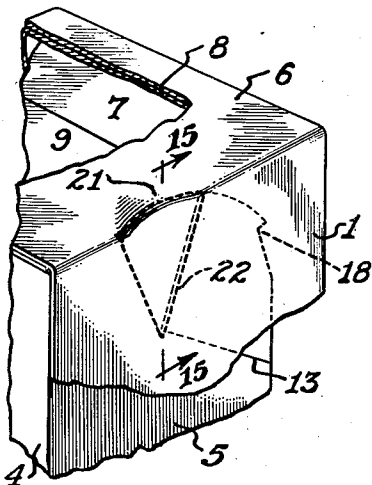
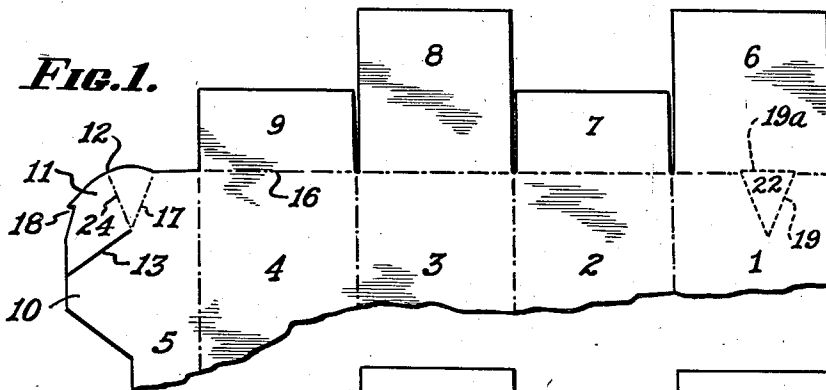


Fig. 4.

Fig. 2.

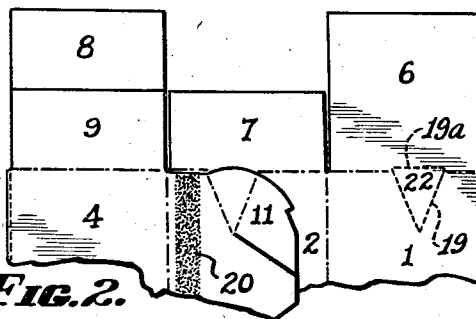


Fig. 3.

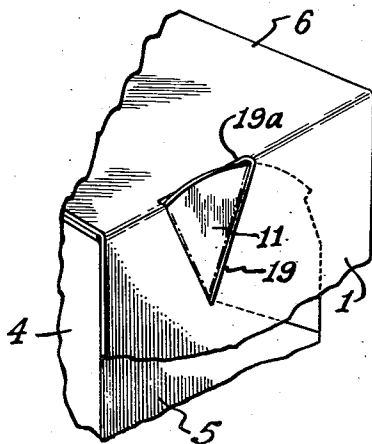
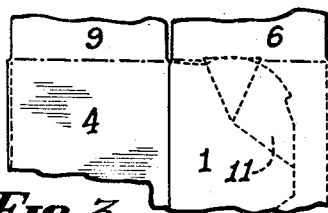


Fig. 5.

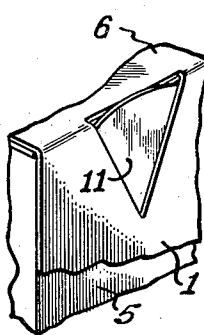


Fig. 7.

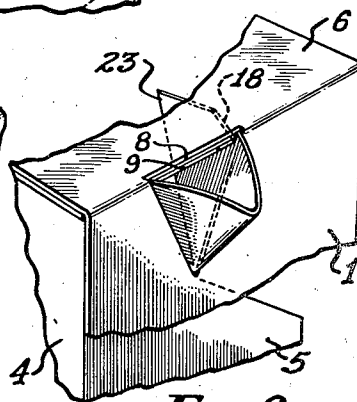


Fig. 6.

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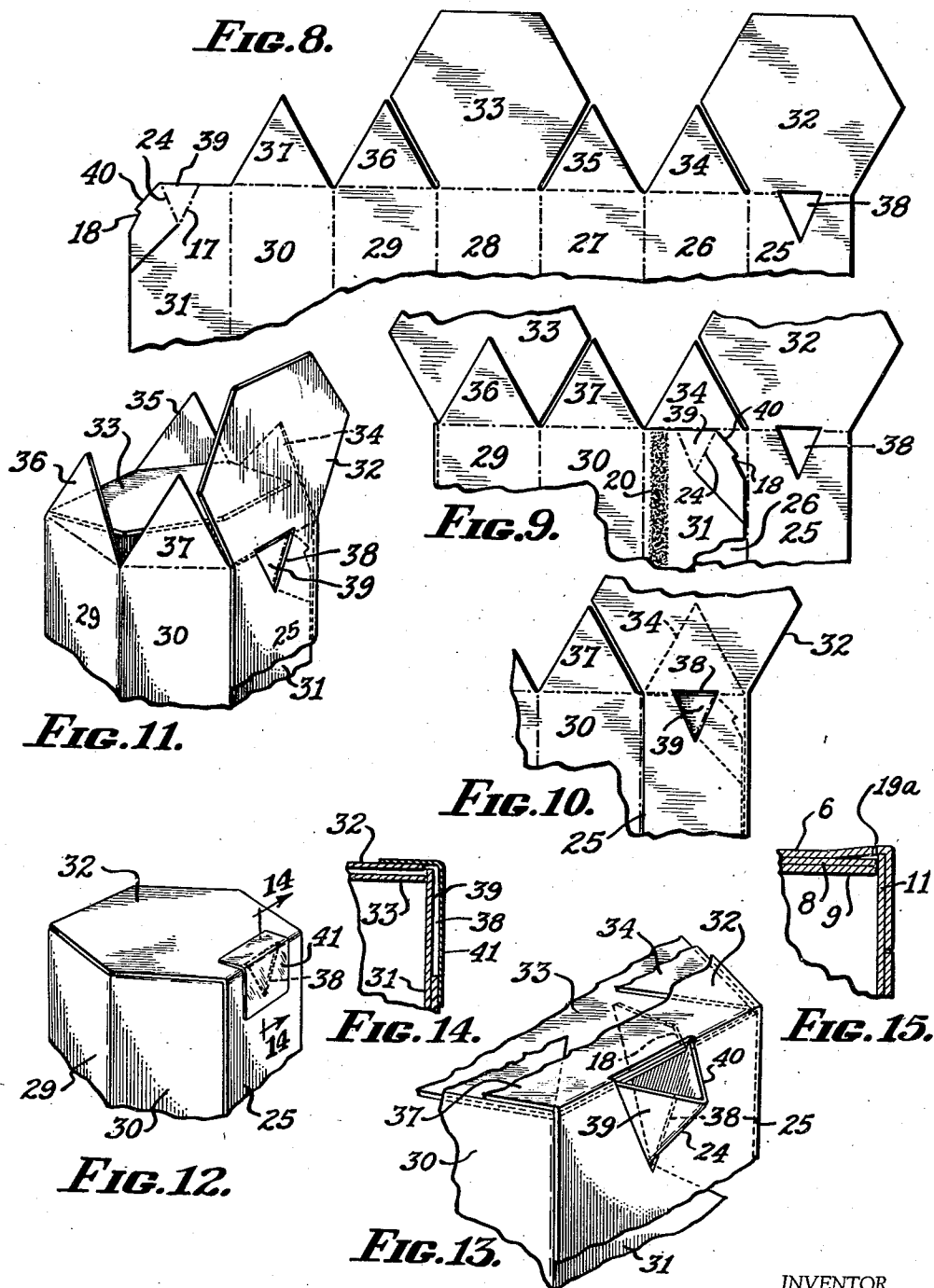
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UNITED STATES PATENT OFFICE

2,358,659

CARTON HAVING A POURING SPOUT

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Application June 5, 1942, Serial No. 445,889

14 Claims. (Cl. 229-17)

The primary object of my invention is the production of a carton having an erectable pouring spout of simplified and improved construction. It is an object of my invention to provide a carton which may be filled, sealed and shipped in the ordinary way and which as so produced will be tight in construction in spite of the provision of pouring spout means. It is an object of my invention to provide a carton in which access to and the erection of a pouring spout is so simplified that the tendency of the user will be to employ the pouring spout rather than to cut the carton open. It is an object of my invention to provide a pouring spout structure which does not involve folding on the part of the user or any similar inconvenient operation such as the insertion of parts in openings. It is an object of my invention to provide a pouring spout structure of such character that its proper operation is insured and failure is prevented.

These and other objects of my invention which will be set forth hereinafter or will be apparent to those skilled in the art upon reading these specifications, I accomplish by that particular construction and arrangement of parts of which I shall now describe certain exemplary embodiments.

Reference is made to the drawings wherein:

Figure 1 is a partial plan view of a carton blank embodying the features of construction contemplated by this invention.

Figure 2 is a partial plan view of the same carton after the glue has been applied to the glue flap and after the first fold has been made in tubing the carton.

Figure 3 is a similar partial plan view after the carton has been fully tubed.

Figure 4 is a partial perspective view with parts in section showing the relationship of the parts after the carton has been filled and sealed.

Figure 5 is a similar view after the removal of the protective covering portion over the pouring spout.

Figure 6 is a similar view showing the pouring spout in fully erected condition.

Figure 7 is a view thereof after the pouring spout has been reclosed.

Figure 8 is a partial plan view of a blank of somewhat different character.

Figure 9 is a partial plan view thereof after the glue has been applied and the first fold made.

Figure 10 is a similar partial plan view of the completely tubed carton.

Figure 11 is a partial perspective view of the

erected carton during the operation of closing one end.

Figure 12 is a perspective view of the closed and sealed carton.

Figure 13 is illustrative of the carton with the pouring spout erected.

Figure 14 is a partial sectional view along the line 14-14 in Figure 12.

Figure 15 is a partial sectional view along the line 15-15 of Figure 4.

Briefly in the practice of my invention I provide a pouring spout the body and wing of which is formed in the glue flap of a carton. By consequence, in the completed carton structure the pouring spout member will be completely covered by one of the carton walls. This carton wall may, if desired, be provided with a preformed cut out through which the pouring spout may be erected; but I may provide it with a removable area defined by lines of weakening such as lines of perforations. In the completed structure such an area is readily removed.

The type of pouring spout which I provide is one of triangular or V-shaped cross section, and is adapted to be erected through a triangular opening in the said overlying wall.

It is necessary, however, that the pouring spout structure be easily erectable, and in particular that it will not be difficult to engage and pull forward the pouring spout. It is essential that the pouring spout structure be so arranged that an attempt to engage and pull it outwardly will not result in striking the pouring spout inwardly, so that it will be difficult or impossible to engage it. Consequently there must be provided some type of stop for the pouring spout structure when it is in non-erected form. I provide such a stop by locating the top of the pouring spout structure adjacent one of the ends of the carton, where the stop may be provided by the edge or edges of one or more of the closure flaps of the carton. This construction also enables me to provide a structure in which the top edge of the pouring spout is presented in a position of easy access.

Again, it is desirable to provide a pouring spout structure which will be strong and sturdy and will accurately direct a stream of the contents poured from the package. To this end, I provide a spout structure which has positively acting means to maintain it in erected position as will hereinafter be more fully set forth.

In Figure 1 I have shown a carton blank comprising walls 1, 2, 3 and 4 and a glue flap 5. Sealing tabs 6, 7, 8 and 9 are attached respectively to

the carton walls. The sealing flap is enlarged as at 10 and in this portion I provide a pouring spout structure indicated generally at 11, by shaping the upper corner of the glue flap generally in an arc 12 and making a slit 13 from the side edge of the glue flap to the center of the arc. It will be noted that the uppermost portion of the arc extends slightly above the top edge of the glue flap proper, and slightly above the score line 16 which is a continuation of that top edge. A radial score line 17 may be made from the end of the slit 13 to the beginning of the arch shaped portion. A notch in the arc shaped portion is formed as at 18.

In the wall 1 I may provide lines of weakening 19 demarking the triangular removable portion mentioned above. It will be noted that the top weakened line at 19a lies slightly above the score line 16 which demarks the sealing flaps from the side walls of the carton. The weakened line 19a may be straight as shown, or it may be arcuate in conformation following generally the arc 12 of the pouring spout.

The carton blank will be tubed in the ordinary fashion and by the ordinary machines. I have shown the application of glue as at 20 in Figure 2 and the formation of the first fold, and the final fold in Figure 3.

The carton is filled and sealed in the usual manner. In sealing, the order in which the flaps are folded and glued is not important excepting that the sealing flap 6 must be folded over and glued last. In a carton such as that shown in Figure 1 flaps 7 and 9 may first be folded, then flap 8 and then flap 6. This is illustrated in Figure 4. When flap 6 is folded over, that arcuate portion of the pouring spout 11 which rises above the score line 16 will produce a slight hump as shown at 21 in the edge of the sealing flap. This hump facilitates the removal of the triangular removable portion 22 of the wall 1. In the cross sectional view, Figure 15, it will be seen how the flaps 9 and 8 both lie behind the upper edge of the pouring spout 11 so that the pouring spout cannot be struck inwardly of the carton.

As shown in Figure 5, when the triangular portion 22 has been torn out of the overlying wall 1 along the lines of perforations 19, 19a the top of the pouring spout 11 not only will be backed as just explained, but will preferably actually extend slightly above the level of the top of flap 6. It can be readily engaged by the fingernail and the pouring spout erected as in Figure 6. When the pouring spout has been erected, the notch 18 will engage the edges of flaps 7 or 9 and 8, and will maintain the spout in erected condition.

It is not normally necessary in my construction to provide means for keeping the pouring spout from coming out too far. In a triangular spout of the type shown, where wall 1 has substantial width, the cut 13 may be so placed in the glue flap that the wing is too long to come out through the perforation in the wall 1. Yet, if desired, the tail of the wing may be so shaped as at 23 in Figure 6, as to impinge upon the top of the carton to inhibit further withdrawal. This is not however necessary where the wing may be made substantially as long as desired, since the spout will collapse on the outside of the carton before the wing can be fully withdrawn. The essential in my construction is the provision of a notch 18 which will hold the pouring spout in erected condition. I may, if desired, provide another score line 24 substantially coincident with

the other edge of the perforation in the outer wall 1; but neither the score line 17 or 24 are necessary in my construction. In fact, I prefer to omit the score line 24 at least, and may omit both. The omission of the score lines does not interfere with the erection of the spout, and when the spout is erected gives a strong and more rigid construction, for the springiness of the board is thus utilized to give a sturdier spout when the spout is held open by the notch 18.

In the remainder of the figures I have illustrated the application of a modified pouring spout to an hexagonal form of carton having (Figure 8) side walls 25, 26, 27, 28, 29 and 30, and a glue flap 31. Side walls 25 and 28, which are opposite side walls, each bear a sealing flap 32 or 33 which is the same in size and shape as the end of the erected structure. The remaining side walls bear triangular sealing flaps 34, 35, 36 and 37.

In the style of pouring spout here shown, which is applicable to any type of carton, the wall 25 is not weakened by lines of perforation but has a preformed triangular cut out 38. The pouring spout itself is again formed in the glue flap 31. It is similar in character to the pouring spout previously described, but it has a flat top 39 to which a wing portion with an equally flat top 40 is attached. The pouring spout also has the notch 18 previously described, together with a score line 17. The score line 24 may be added if desired.

Figures 9 and 10 illustrate the stages of tubing the knocked down carton formed from the blank of Figure 8. Figure 11 shows the steps of sealing the end of the carton. The flap 33 is first folded down as shown, then flaps 34, 35, 36 and 27 are folded over and glued to the underlying flaps, giving the structure shown in Figure 12. In this structure an end of the flap 33 will lie behind the upper edge 39 of the pouring spout. To prevent the sifting of the contents, the opening 38 in the pouring spout itself may, in the filled and sealed carton shown in Figure 12, have a thin, readily frangible, and preferably transparent sticker 41 pasted over it.

It will be noted that my construction is such that in all cartons having appreciable width of walls, spot gluing is not necessary. Glue as at 20 may be applied by the ordinary non-timed glue wheel. While my construction requires a greater width in the glue flaps 5 and 31 than would be required in cartons equipped with no pouring spout, yet considerable board may be saved by making the glue flap of full width only for a part of its length as illustrated both in Figures 1 and 8, and nesting the carton blanks on a piece of board as will be readily understood by the skilled die maker.

The exact angularity of the slit 13 in the glue flaps 5 or 31 is not a limitation on my invention. The angularity should preferably be chosen to give a wing length to the pouring spout such that the wing cannot be withdrawn through the opening in the overlying wall, yet such that the wing will not be too large. The relative size of the wing as shown in my drawings is not such as to interfere with the removal of the contents of the carton through the pouring spout.

Modifications may be made in my invention without departing from the spirit of it. Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a pouring spout construction for cartons, the combination of an overlying wall in which a triangular perforation may be formed, and an

underlying wall having a partially severed portion capable of being drawn through said perforation, said portion bending along a line substantially coincident with a side of said triangular perforation, and in an intermediate area, to form a two-wing pouring spout, in which a wing of the pouring spout is provided with a notched portion automatically engageable with another carton portion at another side of said triangular perforation to maintain said pouring spout in withdrawn condition.

2. In a carton, a plurality of walls which are substantially coterminous, some of said walls at least having sealing flaps articulated thereto, one of said walls having a glue flap articulated thereto, said glue flap being in adhesive union with another of said walls which overlies it, said overlying wall having a perforation adjacent its line of articulation to a sealing flap, and said glue flap being configured to provide a pouring spout structure which may be withdrawn through said perforation, said pouring spout structure being located adjacent the line of articulation of said walls to said sealing flaps, and a portion of said pouring spout being so located that when said carton is erected and closed an edge of one of said flaps at least will lie behind said portion of said pouring spout to prevent said portion of said pouring spout from being struck inwardly of the carton in an attempt to engage it for withdrawal through said perforation.

3. In a carton, a plurality of walls articulated together and a glue flap articulated to one of said walls, said walls being substantially coterminous, and some at least of said walls having sealing flaps articulated thereto, said glue flap being in adhesive union with an overlying wall, said overlying wall having substantially a triangular removable portion bounded by lines of weakening, one of said lines being closely adjacent the articulation of said wall to its sealing flap, said glue flap having a portion lying beneath said removable portion and being withdrawable therethrough to form a two-wing pouring spout.

4. In a carton, a plurality of walls articulated together and a glue flap articulated to one of said walls, said walls being substantially coterminous, and some at least of said walls having sealing flaps articulated thereto, said glue flap being in adhesive union with an overlying wall, said overlying wall having substantially a triangular removable portion bounded by lines of weakening, one of said lines being closely adjacent the articulation of said wall to its sealing flap, said glue flap having a portion lying beneath said removable portion and being withdrawable therethrough to form a two-wing pouring spout, said pouring spout bearing on one of its wings a notch so located as to engage a carton portion at said last mentioned line of weakening and maintain the said pouring spout in erected condition after it has been so withdrawn.

5. In a carton, a plurality of walls articulated together and a glue flap articulated to one of said walls, said walls being substantially coterminous, and some at least of said walls having sealing flaps articulated thereto, said glue flap being in adhesive union with an overlying wall, said overlying wall having substantially a triangular opening, one of the sides of which is closely adjacent the articulation of said wall to its sealing flap, said glue flap having a portion lying beneath said opening and being withdrawable therethrough to form a pouring spout, said pour-

ing spout bearing a notch so located as to tend to maintain the said pouring spout in erected condition after it has been so withdrawn by engagement with other carton portions, the said opening in said overlying wall and the said pouring spout portion being so located and configured that when said carton is erected and sealed, an edge of one of said sealing flaps at least will lie behind a portion of said pouring spout in order to prevent said pouring spout from being struck inwardly of said carton when an attempt is made to engage the pouring spout portion to erect it.

6. In a carton, a plurality of walls articulated together and a sealing flap articulated to one of said walls, said walls being substantially coterminous, and some at least of said walls having sealing flaps articulated thereto, said glue flap being in adhesive union with an overlying wall, said overlying wall having substantially a triangular removable portion bounded by lines of weakening, one of said lines being closely adjacent the articulation of said wall to its sealing flap, said glue flap having a portion lying beneath said removable portion and being withdrawable therethrough to form a pouring spout, said pouring spout bearing a notch so located as to tend to maintain the said pouring spout in erected condition after it has been so withdrawn by engagement with other carton portions, the said removable portion of said overlying wall and the said pouring spout portion being so located and configured that when said carton is erected and sealed, an edge of one of said sealing flaps at least will lie behind a portion of said pouring spout in order to prevent said pouring spout from being struck inwardly of said carton when an attempt is made to engage the pouring spout portion to erect it, said pouring spout portion comprising a part of said glue flap partially severed therefrom by an incomplete line of cut, the removable portion of said overlying wall being substantially triangular with its apex directed away from the line of articulation of said wall to its sealing flap, said cut in said glue flap terminating substantially at said apex, the remainder of said pouring spout portion having substantially an arcuate configuration of which the center is at the termination of said line of cut, whereby said pouring spout portion may be withdrawn through said perforation to form a pouring spout of substantially U- or V-shaped cross section.

7. The structure claimed in claim 6, wherein said pouring spout portion to be so withdrawn through said perforation is unscored.

8. In a carton a plurality of walls articulated together and a glue flap articulated to one of said walls, said walls being substantially coterminous, and some at least of said walls having sealing flaps articulated thereto, said glue flap being in adhesive union with an overlying wall, said overlying wall having substantially a triangular removable portion bounded by lines of weakening, one of said lines being closely adjacent the articulation of said wall to its sealing flap, said glue flap having a portion lying beneath said removable portion and being withdrawable therethrough to form a pouring spout, said pouring spout bearing a notch so located as to tend to maintain the said pouring spout in erected condition after it has been so withdrawn by engagement with other carton portions, the said removable portion of said overlying wall and the said pouring spout portion being so located and configured that when said carton is erected and sealed, an edge of one

of said sealing flaps at least will lie behind a portion of said pouring spout in order to prevent said pouring spout from being struck inwardly of said carton when an attempt is made to engage the pouring spout portion to erect it, said pouring spout portion comprising a part of said glue flap partially severed therefrom by an incomplete line of cut, the removable portion of said overlying wall being substantially triangular with its apex directed away from the line of articulation of said wall to its sealing flap, said cut in said glue flap terminating substantially at said apex, the remainder of said pouring spout portion having substantially an arcuate configuration of which the center is at the termination of said line of cut, whereby said pouring spout portion may be withdrawn through said opening to form a pouring spout of substantially U- or V-shaped cross section, an arcuate part of said pouring spout portion extending slightly above the line of articulation of said overlying wall and its articulated glue flap, and the line of weakening demarking that portion of the removable part of said overlying wall being configured to lie beyond the said extending part of said pouring spout portion whereby when said carton is closed and sealed a slight protuberance will be made in the top thereof, permitting the more ready removal of the removable portion of said overlying wall and providing a structure in which after said removable portion has been removed, the extending part of said pouring spout portion will lie slightly above the top of said carton so that it may be more readily engaged.

9. The structure claimed in claim 8, in which said carton is of hexagonal cross section and in which two of said sealing flaps are of hexagonal shape, the remainder of said sealing flaps being triangular in shape.

10. In a carton, an overlying wall and an underlying wall, said overlying wall having a top portion articulated thereto and located substantially at right angles to the wall, said wall having a substantially triangular perforation with one of its sides substantially coinciding with the line of articulation of said top to said wall, and its apex directed away therefrom, said underlying wall being slit inwardly from an edge to said apex and the portion so partially severed being configured to form a pouring spout withdrawable through said triangular perforation, the top of said pouring spout extending upwardly substantially into the plane of said top when the pouring spout is closed, and said pouring spout when erected having a substantially U-shaped cross section.

11. In a carton, an overlying wall and an underlying wall, said overlying wall having a top portion articulated thereto and located substantially at right angles to the wall, said wall having a substantially triangular perforation with one of its sides substantially coinciding with the line of articulation of said top to said wall, and its apex directed away therefrom, said underlying wall being slit inwardly from an edge to said apex and the portion so partially severed being configured to form a pouring spout withdrawable through said triangular perforation, the top of said pouring spout extending upwardly substantially into the plane of said top when the pouring spout is closed, and said pouring spout when erected having a substantially U-shaped cross

section, and being unscored in that portion which is withdrawn through said perforation, and further having a notch therein so directed as to produce engagement of the pouring spout with another wall portion to maintain the pouring spout erected against the resiliency of the material of the pouring spout.

12. In a carton, an overlying wall and an underlying wall, said overlying wall having a top portion articulated thereto and located substantially at right angles to the wall, said wall having a substantially triangular perforation with one of its sides substantially coinciding with the line of articulation of said top to said wall, and its apex directed away therefrom, said underlying wall being slit inwardly from an edge to said apex and the portion so partially severed being configured to form a pouring spout withdrawable through said triangular perforation, the top of said pouring spout extending upwardly substantially into the plane of said top when the pouring spout is closed, and said pouring spout when erected having a substantially U-shaped cross section, and being unscored in that portion which is withdrawn through said perforation, and further having a notch therein so directed as to produce engagement of the pouring spout with another wall portion to maintain the pouring spout erected against the resiliency of the material of the pouring spout, the said pouring spout portion having a wing part of such length as substantially to prevent the withdrawal of the entire pouring spout through said perforation.

13. In a carton, a plurality of walls articulated together, and a glue flap articulated to one of said walls, said walls being substantially coterminous, and some at least of said walls having sealing flaps articulated thereto, said glue flap being in adhesive union with an overlying wall, said overlying wall having a substantially triangular opening therein, one of said lines being closely adjacent the articulation of said wall to its sealing flap, said glue flap having a portion lying beneath said opening and being withdrawable therethrough to form a pouring spout, said pouring spout bearing a notch so located as to tend to maintain the said pouring spout in erected condition by engagement with other carton portions after it has been so withdrawn, the said opening in said overlying wall and the said pouring spout portion being so located and configured that when said carton is erected and sealed, an edge of one of said sealing flaps at least will lie behind a portion of said pouring spout to prevent said pouring spout from being struck inwardly of said carton when an attempt is made to engage it, said pouring spout portion comprising a part of said glue flap partially severed therefrom by an incomplete line of cut, the said pouring spout having a portion of which the top edge is substantially in alignment with said line of articulation and another portion of which the top edge is at an angle thereto, whereby said pouring spout portion may be withdrawn through said opening to form a pouring spout of substantially U or V shaped cross section.

14. The structure claimed in claim 13, in which said carton is of hexagonal cross section, and in which two of said sealing flaps are of hexagonal shape, the remainder of said sealing flaps being triangular in shape.

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