Aug. 11, 1959 F. H. STOWITTS ET AL 2,899,119

DISPENSING CARTON WITH A PUSH-PULL CLOSURE FOR SAME

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Fig. 1

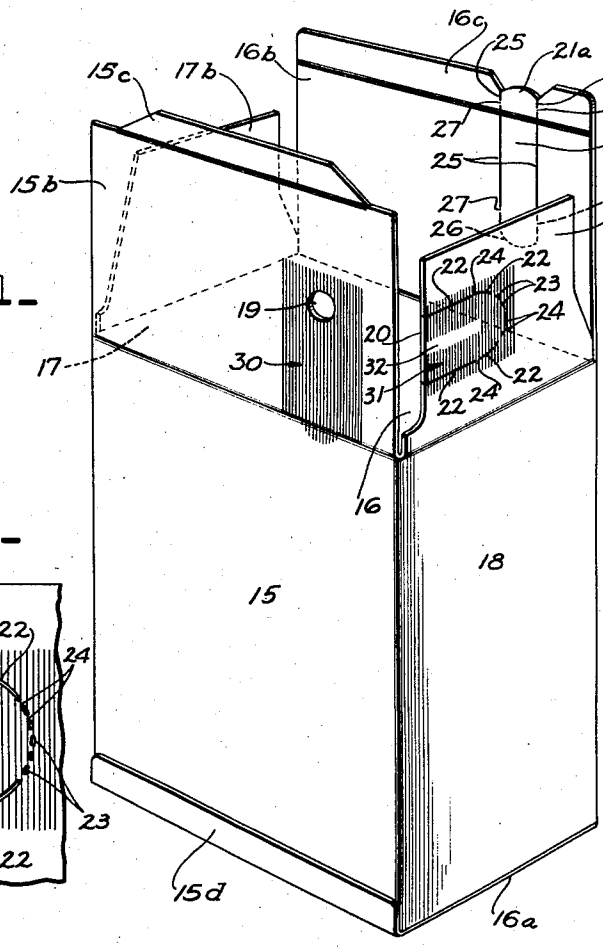


Fig. 11

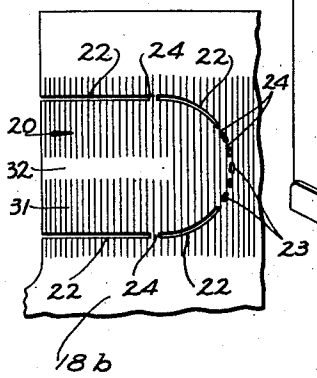


Fig. 12

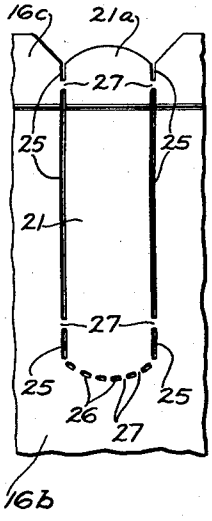
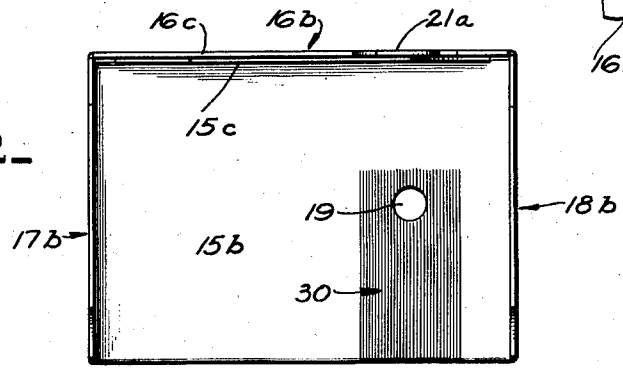


Fig. 2



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FIG. 3

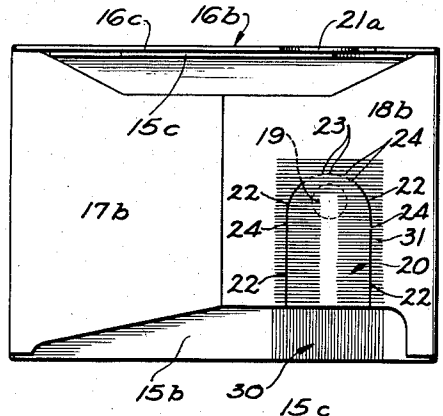


FIG. 4

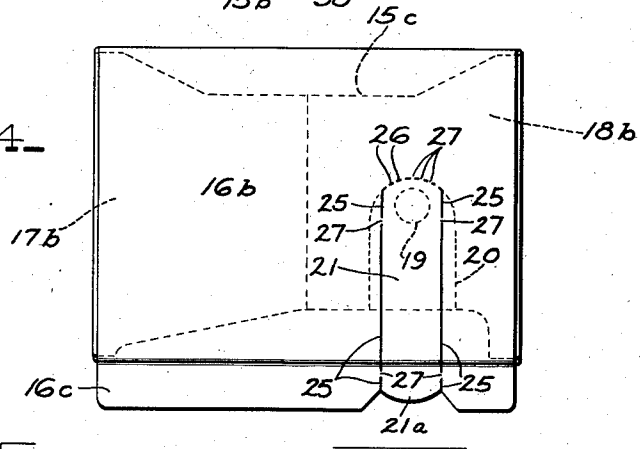


FIG. 5

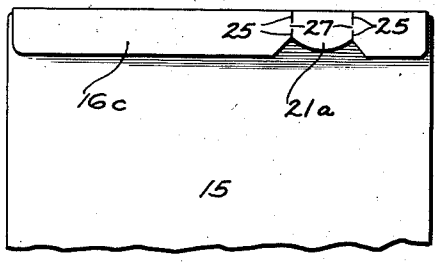


FIG. 6

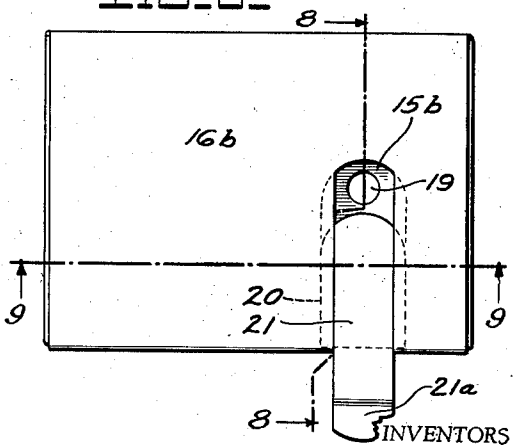
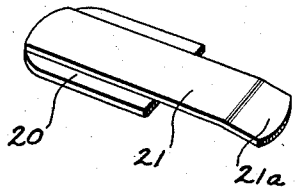


FIG. 7



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FIG. 8

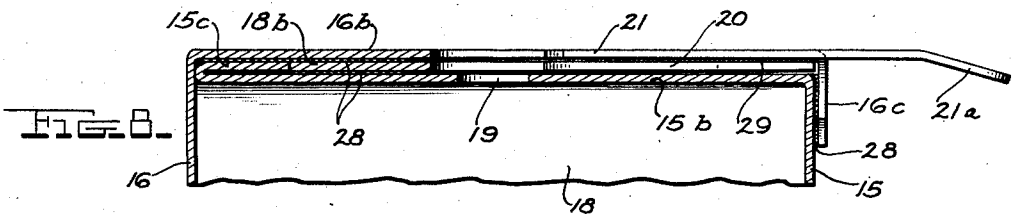


FIG. 9

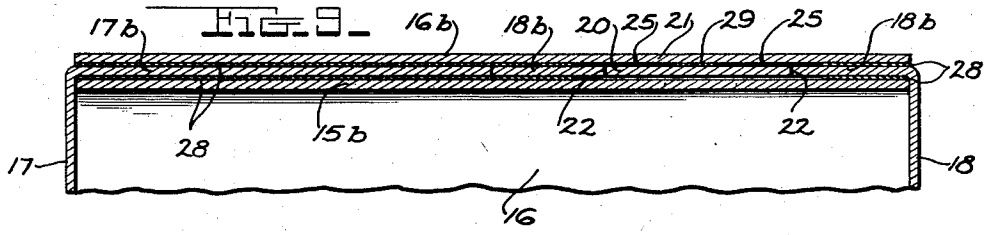
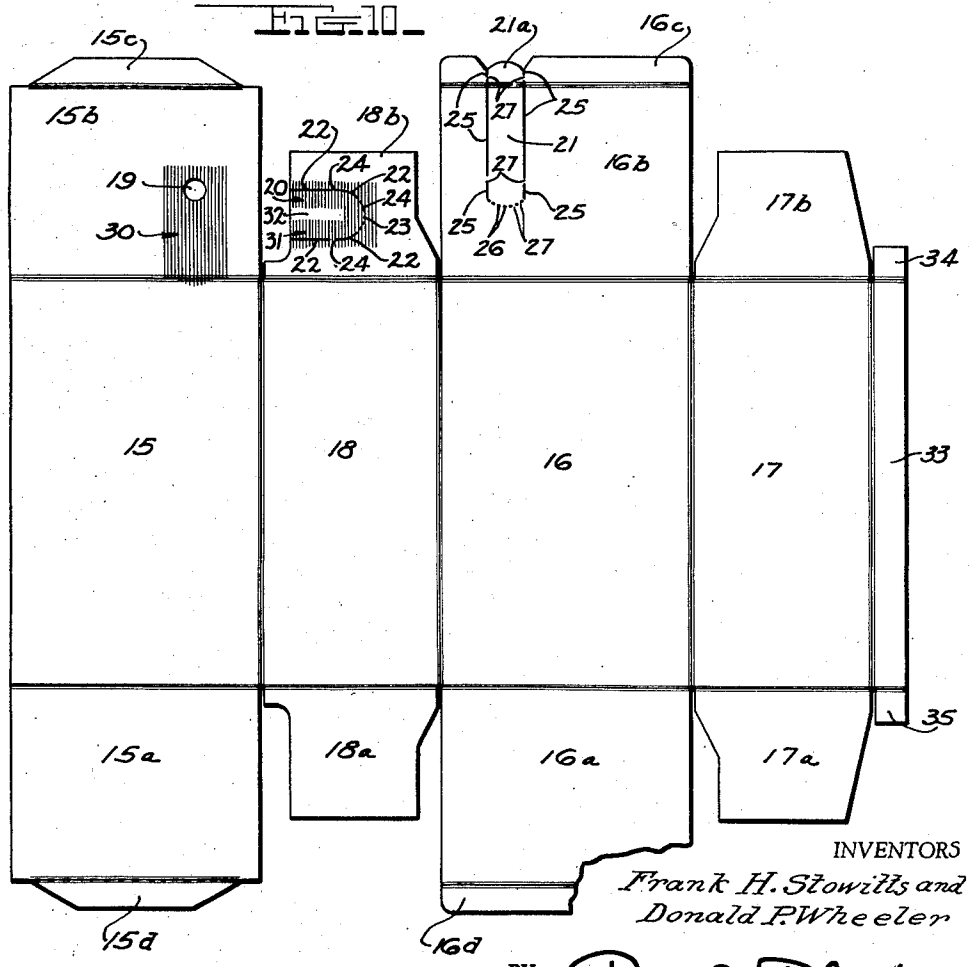


FIG. 10



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2,899,119

DISPENSING CARTON WITH A PUSH-PULL CLOSURE FOR SAME

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Application June 11, 1956, Serial No. 590,687

8 Claims. (Cl. 229—17)

The present invention relates broadly to cartons, and in its specific phases to cartons having a reclosable dispensing portion formed from the carton blank itself.

A number of containers with reclosable dispensing members have been proposed in the past, and in general they have involved pick up or lift up devices, such as the metal spout members of salt containers, or else they have required folding, threading, or other forms requiring manipulation by the user to attain reclosure or reuse. A two-piece dispensing portion which is simple and operates through conventional push and pull manipulation is needed by the container using industry. It was a recognition of this problem and the complete lack of any wholly satisfactory solution of same on the market, which led to the conception and development of the present invention.

Accordingly among the objects of the present invention is the provision of a special type of carton for packaging flowable material such as powdered or granular products and dispensing them as needed.

The invention aims to provide a new and improved carton of extreme simplicity and free from parts not a portion of the carton blank, as well as free from pick-up or lift-out elements and elements requiring folding or other manipulation of carton parts in order to permit dispensing and re-closing of the dispensing opening.

To attain the above end, a further object of the invention is to provide a novel slide valve and valve-operating element both included in the carton structure, said slide valve being operable by simple pull and push movements of said operating element to open and close a dispensing opening.

Another object is to provide a novel construction in which the slide valve and the valve-operating element are formed from portions of the carton, said valve and operating element being cut almost entirely free from said portions of the carton but being joined thereto by restricted connecting portions which may be readily broken to condition the carton for use.

The carton may be conveniently constructed from a single blank having top and bottom forming flaps; and a further object is to provide one of the top-forming flaps with a dispensing opening, to provide the next overlying flap with a valve-forming portion extending over said opening, and to provide the uppermost flap with a valve-operating portion, said valve-forming portion and valve-operating portion being connected with their respective flaps only by restricted connecting portions which may be easily broken to condition the carton for use.

The above mentioned flaps are glued together; and a further object is to make novel provision whereby none of the glue can act to hold the slide valve and its operating elements against free sliding movements.

A further object is to provide a carton with a simple, low cost, positive operating reclosure means which is easy to manufacture and put into operation.

Still further objects and advantages of the invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawings and the following description setting forth in detail certain means for carrying out the invention, such means illustrating, however, but one of various ways in which the principle of the invention may be used.

In the annexed drawings:

Figure 1 is a perspective view of the carton with its bottom folded and sealed and its top forming flaps in upstanding position.

Figure 2 is a top view showing the front wall flap folded rearwardly and downwardly.

Figure 3 is a similar view showing the side wall flaps folded inwardly and downwardly onto the front wall flap.

Figure 4 is a similar view showing the back wall flap folded forwardly and downwardly onto the side wall flaps, the front flange of said back wall flap being shown in readiness for downward folding.

Figure 5 is a fragmentary front view, showing the aforesaid flange folded downwardly against the carton front wall.

Figure 6 is a top view of the completed carton showing the slide valve and its operating member pulled forwardly to expose the dispensing opening.

Figure 7 is a perspective view of the slide valve and its operating member.

Figures 8 and 9 are sectional views on lines 8—8 and 9—9 of Figure 6, looking in the direction of the arrows, and exaggerated to show the glue between the flaps.

Figure 10 is a plan view of a preferred form of the carton blank.

Figure 11 is a fragmentary enlarged detail elevation showing the valve-forming portion of the carton blank.

Figure 12 is a similar fragmentary view showing the valve-operating portion of the carton blank.

A carton is shown in the drawings, briefly described above, which is of the same general construction as that disclosed in U.S. Patent No. 2,670,128, issued February 23, 1954, to Frank H. Stowitts, but which lacks a pouring spout. The improvements of the present invention, however, are of general application and may well be embodied in other carton structures than that set forth in said patent.

The blank of Figure 10 includes a front wall portion **15**, a back wall portion **16**, and side wall portions **17** and **18** to form the correspondingly numbered front, back and side walls of the carton. Integral with a side edge of side wall portion **17** is a side flap **33** which, in the finished carton, is glued to the inner face of front wall portion **15** at its free edge. Ears **34** and **35** at the ends of flap **33**, in turn, are glued to flaps **15***b* and **15***a*. Flaps **15***a*, **16***a*, **17***a* and **18***a* are integral with the lower ends of the wall portions **15**, **16**, **17** and **18**, respectively, to be folded upwardly and inwardly and glued together to form the carton bottom. Other flaps **15***b*, **16***b*, **17***b* and **18***b* are integral with the upper ends of the wall portions **15**, **16**, **17** and **18**, respectively, to be folded inwardly and downwardly and glued together to form the carton top, which aside from the portions of same which form the spout, is substantially the same as the bottom. The upper end of the front wall flap **15***b* is shown as having a flange-forming projection **15***c*, and the upper end of the back wall flap **16***b* has a similar projection **16***c*. Corresponding projections **15***d* and **16***d* are shown on the lower ends of the flaps **15***a* and **16***a*, respectively.

The front wall flap **15***b* is formed with a dispensing opening **19** of suitable size; the side wall flap **18***b* is provided with a valve-forming portion **20** adapted to cover

and uncover opening **19** in final assembly; and the back wall flap **16***b* is formed with an elongated valve-operating portion **21**. The elements **20** and **21**, Figure 4, are so positioned that when the flaps **15***b*, **16***b*, **17***b* and **18***b* are folded inwardly and downwardly and glued to form the carton top, as shown, the valve-forming portion **20** extends over the dispensing opening **19**, Figure 3, and the valve-operating portion **21** extends over and projects forwardly from said valve-forming portion, Figure 4, said portions **20** and **21** being glued together to form the assembly shown in Figure 7.

The valve-forming portion **20**, Figure 11, is almost entirely cut from the flap **18***b*, by cuts **22** and perforations **23**, but is integrally joined to said flap by restricted connecting portions **24** which may be readily broken to free said portion **20** and convert it into a slide valve for opening and closing the dispensing opening **19**.

The valve-operating portion **21**, Figure 12, is almost entirely cut from the flap **16***b*, and flange **16***c* by cuts **25** and perforations **26** but is integrally joined to said flap and flange by restricted connecting portions **27** which may be readily broken to free said portion **21** and thus convert it into an operating element for the slide valve **20**. The perforations **26**, Figure 4, are at the inner end of the valve-operating portion **21** and these perforations **26** substantially coincide in location, when the flaps are closed, with the perforations **24**, Figure 3, at the inner end of the valve-forming portion **20**, the front end of this portion **20** being rearwardly spaced from the carton front to permit endwise movement and uncovering of opening **19**, all of which will be clear from Figures 3, 4 and 6. The front end of the valve-operating portion **21** extends into the flange-forming portion **16***c* of the flap **16***b* and is joined thereto by two of the connecting portions **27**. In the completed carton, the portion **16***c* is turned downwardly and glued to the carton front wall **15** as seen in Figure 5. The front end **21***a* of the valve-operating portion **21** is turned downwardly with the flange **16***c* but is, of course, preferably not glued to the front wall **15**. It remains in this position until contents are to be poured from the carton and is then broken loose from the flange. Either before or after this is done, downward pressure is exerted on the member **21** to break the connecting portions **24** and **27**, thereby freeing both the slide valve **20** and its operating member **21** for endwise movement. Then by simple endwise pulling or pushing on this operating member, the valve may be easily opened and closed as required.

Glue is shown at **28** in Figures 8 and 9 securing the flaps **15***b*, **16***b*, **17***b* and **18***b* together and securing the flange **15***c* to the uppermost flap **16***b*. Glue is also shown at **29**, by vertical shading in Figure 8 and diagonal cross hatching in Figure 9, securing the valve-forming portion **20** and the valve-operating portion **21** together. It is of course essential that no glue be applied in areas which would secure either element **20** or **21** against sliding when they are joined together as a unit. To positively prevent this, the area of the front wall flap **15***b* upon which the slide valve **20** must slide is conventionally treated with wax, oil, special water repellent ink, or the like to prevent glue from adhering to it. The treated area is indicated by shading at **30** and this area is sufficiently oversize to guard against any glue reaching the lower side or edges of said valve **20**. Also, the upper side of this valve **20** is similarly treated as indicated by the shade lines **31**, except in the area **32** in which the glue **29** must secure said valve to the valve operator **21**. The treated area extends a safe distance in all directions beyond the outer edges of valve **20** onto the flap **18***b*.

The blank of Figure 10 may be readily folded to form the vertical carton walls, and the bottom and the top by first joining side flap **33** and its ears **34** and **35** to front wall **15** and top and bottom flaps **15***b* and **15***a*. In forming the top, the front wall flap **15***b* is folded rearwardly and downwardly and its flange **15***c* is glued to the back wall flap **16***b*, as shown in Figure 2. This may be done

with flap **16***b* standing vertical as shown in Figures 1, 2, and 3, or with flap **16***b* turned out horizontally if the glue applying and flap sealing apparatus operates better in that position. Next, the side wall flaps **17***b* and **18***b* are inwardly and downwardly folded and glued to the flap **15***b* as shown in Figure 3. The back wall flap **16***b* is then folded forwardly and downwardly as seen in Figure 4 and is glued to the adjacent face of the flaps **17***b* and **18***b*, the valve-operating portion **21** of said flap **16***b* being also glued to the valve-forming portion **20** of the flap **18***b* at the untreated area **32** thereof. Finally, the flange **16***c* and the front end **21***a* of the valve-operating portion **21** are downwardly folded against the front wall **15**, Figure 5, and the portions of said flange at opposite sides of said end **21***a* are glued in place. The special carton shown is thus tightly sealed in substantially sift proof form but may be readily conditioned for pouring use by freeing the slide valve **20** and its operating member **21** as above explained. The application of glue to the various portions of the carton flaps to be joined together is handled in conventional manner by gluing machinery in common use by the industry.

From the foregoing it will be seen that novel and advantageous provision has been made for attaining the desired ends. However, attention is invited to the possibility of making variations within the spirit and scope of the invention as herein described and shown in the drawings. The directional terms such as "bottom," "top," "upper," "lower," "front," "rear," "forwardly," "rearwardly," "downwardly," and "upstanding" are also to be considered as explanatory of the invention and not limiting on the construction illustrated, and described.

Other modes of applying the principle of our invention may be employed instead of the one explained, change being made as regards the carton and its reclosable dispensing means herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

We therefore particularly point out and distinctly claim as our invention:

1. A dispensing carton having a top composed of a lower thickness, an intermediate thickness secured upon said lower thickness, and an upper thickness secured upon said intermediate thickness, said lower thickness having a dispensing opening therethrough, said intermediate thickness having a portion cut therefrom and constituting a slide valve member which normally covers said dispensing opening and rests slidably on said lower thickness, said lower thickness being free from said intermediate thickness in the operating area of said slide valve member, said upper thickness having an elongated valve-operating portion overlying said slide valve member and cut from said upper thickness, means securing said valve-operating portion upon said slide valve member to form a two-piece valve assembly, said valve-operating portion extending forwardly beyond said slide valve to provide a free-ended tongue by means of which said slide valve may be opened and closed.

2. A dispensing carton having a top composed of a lower thickness, an intermediate thickness secured throughout a major portion of its overlapping area upon said lower thickness and covering a major portion of same, and an upper thickness having a major portion of its overlapping area secured upon said intermediate thickness to form a relatively rigid carton top; said lower thickness having a dispensing opening therethrough, said intermediate thickness having a valve-forming portion extending over said opening and free of connection with said lower and upper thicknesses, said valve-forming portion being almost entirely cut from said intermediate thickness but being integrally joined thereto by restricted connecting portions which may be readily broken to free said valve-forming portion and thereby convert the latter into a slide valve for said opening, said upper thickness having an elongated valve-operating portion which is nar-

rower and longer than said valve-forming portion and secured upon the outer face of said valve-forming portion so as to form a two-piece valve assembly, said valve-operating portion extending forwardly from said valve-forming portion, said valve-operating portion being otherwise free of said intermediate thickness and almost entirely cut from said upper thickness but being integrally joined thereto by restricted connecting portions which may be readily broken to free said valve-operating portion, the forwardly extending front end of said valve-operating portion then constituting a readily gripped tongue by means of which said slide valve may be opened and re-closed.

3. A dispensing carton having a two-piece valve assembly in its top, said valve members being unitary parts of top flaps of the carton blank and wholly within the confines of the two flaps carrying the two valve parts, one of said valve parts being the valve member itself and the other being the valve member operator, said carton, when folded, and glued, having a three ply top with a pouring opening in the inner ply, said valve member, which is in the intermediate ply, being larger than and over the pouring opening of said inner ply, and said valve member operator being in the outer ply and centered over said valve member and narrower than same, means anchoring said valve member operator to said valve member to form the two-piece valve assembly, said valve operator extending to the side of said carton toward which said valve is movable for uncovering said pouring opening, said intermediate ply having a portion recessed back from the carton top edge, toward which said valve member is to be moved for uncovering said pouring opening, a distance at least equal to the distance said valve will have to move to suitably uncover said pouring openings, said valve member and valve member operating portions being releasably connected to their respective top flaps and free to move in unison from pouring opening closing to pouring opening uncovering positions when the carton top is sealed and said valve and valve operator are disconnected from the flaps of which they initially are a part.

4. A dispensing carton having a top composed of a lower thickness, an intermediate thickness secured upon said lower thickness, and an upper thickness secured upon said intermediate thickness; said lower thickness having a dispensing opening therethrough, said intermediate thickness having a valve-forming portion extending over said opening and free of connection with said lower and upper thickness said valve-forming portion being almost entirely cut from said intermediate thickness but being integrally joined thereto by restricted connection portions which may be readily broken to free said valve-forming portion and thereby convert the latter into a slide valve for said opening, said upper thickness having an elongated valve-operating portion which is narrower and longer than said valve-forming portion and secured upon said valve-forming portion so as to form a two-piece valve assembly, said valve-operating portion extending forwardly from said valve-forming portion, said valve-operating portion being otherwise free of said intermediate thickness and almost entirely cut from said upper thickness but being integrally joined thereto by restricted connecting portions which may be readily broken to free said valve-operating portion, the forwardly extending front end of said valve-operating portion then constituting a readily gripped tongue by means of which said slide valve may be opened and re-closed, said upper thickness having a downturned flange secured to the outer side of the carton front wall, the forwardly extending front end of said valve-operating portion of said upper thickness being also turned downwardly and normally forming a portion of said flange, said downwardly turned front end of said valve-operating portion being free of direct connection with said front wall and being integrally connected with the adjacent portions of said flange by restricted readily breakable connecting portions.

5. A dispensing carton having a front wall, a back wall and side walls; said front wall having an integral flap folded downwardly and rearwardly to a horizontal position, said flap having a dispensing opening; said side walls having downwardly and inwardly folded flaps secured upon said front wall flap, one of said side wall flaps having a valve-forming portion extending over said opening and free of connection with said front wall flap, said valve-forming portion being almost entirely cut from said one of said side wall flaps but being integrally joined thereto by restricted connecting portions which may be readily broken to free said valve-forming portion and thereby convert the latter into a slide valve member for said opening, the front end of said valve-forming portion being rearwardly spaced from the carton front wall a distance such that when moved to said front wall said dispensing opening will be uncovered; said back wall having a forwardly and downwardly folded flap with its body portion secured upon said sidewall flaps but free of connection with said valve-forming portion, said back wall flap having a downwardly turned flange secured to the carton front wall and which flange forms a stop for said valve-forming portion, said body portion of said back wall flap carrying an elongated valve-operating portion, means securing said valve-operating portion upon the aforesaid valve-forming portion to form a two-piece valve assembly, said valve-operating portion extending forwardly from the latter to the lower edge of said flange, said elongated valve-operating portion being almost entirely cut from said back wall flap but being integrally joined to this flap and said flange by restricted connecting portions, these connecting portions being readily breakable to free said valve-operating portion for operation when the corresponding connecting portions of said valve-forming portion of said two-piece valve assembly are broken.

6. A structure as set forth in claim 5; in which all of said walls and all of said flaps including said valve-forming portion and said valve-operating portion are formed from a single blank and unitarily joined together, said blank having additional flaps to form the carton bottom.

7. A blank formed from a single piece of foldable sheet material for forming a dispensing carton having a valved dispensing aperture in its upper end, said blank having a front wall portion, a back wall portion, two side wall portions, means for joining said walls together to form a tube, bottom flaps, and four flaps integral with the upper ends of said wall portions respectively, said upper flaps being foldable inwardly and downwardly for gluing together to form a carton top, said front wall flap being foldable in first, said side wall flaps next, and said back wall panel last to bring the dispensing portions in alinement, said front wall flap having a pouring opening therethrough, one of said side wall flaps having its side adjacent said front wall flap recessed therefrom and having terminating in that recessed side a slide valve member held in place by readily breakable restricted connecting portions, said slide valve member covering said pouring opening when in folded position, said back wall flap having a substantially parallel sided valve-operating portion extending into said flap from its outer edge and held in place therein by readily breakable restricted connecting portions, said slide valve operating member being adapted to register over said slide valve for parallel movement therewith when the blank is folded into finished carton form with said valve-operating member fastened to said slide valve member, said recessed side of said flap carrying said slide valve permitting the slide valve to move endwise to slidably cover and uncover said dispensing opening in the front wall flap in the completed carton, and said valve-operating portion being of elongated form and substantially centered upon and narrower than said

slide valve member in the completed carton to limit said valve member to endwise movement with said valve-operating member when fastened thereto.

8. A structure as set forth in claim 7; said front wall flap having a treated area which prohibits gluing thereof to said valve-forming portion, and said flap carrying said valve-forming portion having a treated surface portion around said valve-forming portion as well as part of the latter which prohibits gluing of said back wall flap thereto, in the finished carton except in the area covered by said valve-operating portion in contact with said valve-forming portion.

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