Aug. 30, 1960 S. L. PEIMER 2,950,851

SLIDE CLOSURE CARTON

Filed July 29, 1958 2 Sheets-Sheet 1

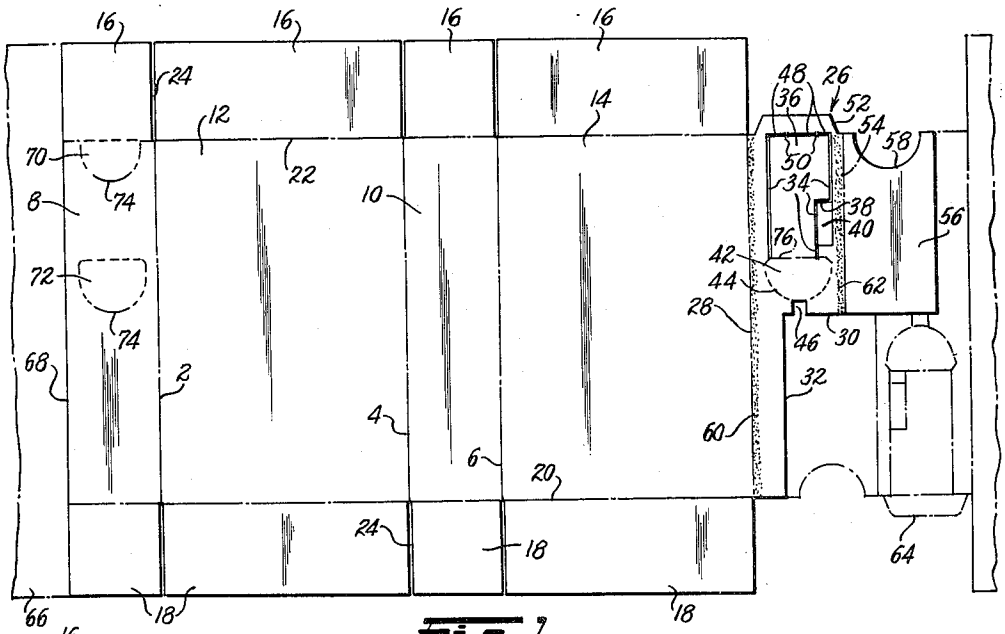


Fig. 1.

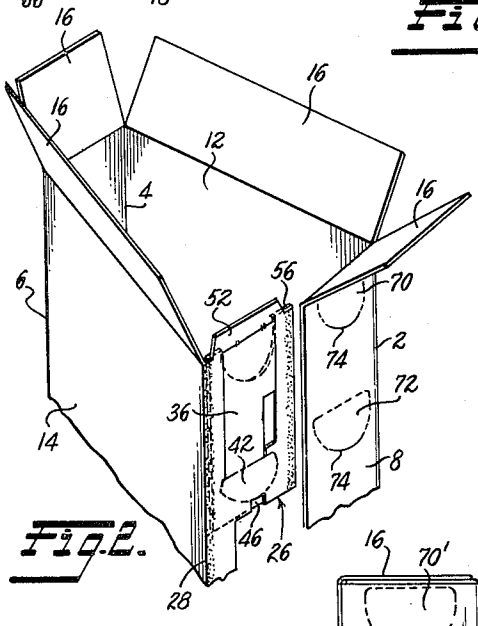


Fig. 2.

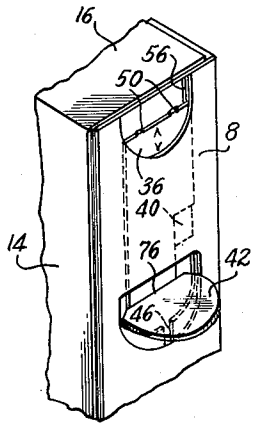


Fig. 3.

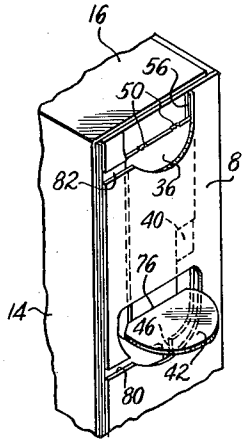


Fig. 4.

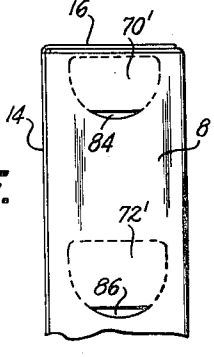


Fig. 5.

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SLIDE CLOSURE CARTON

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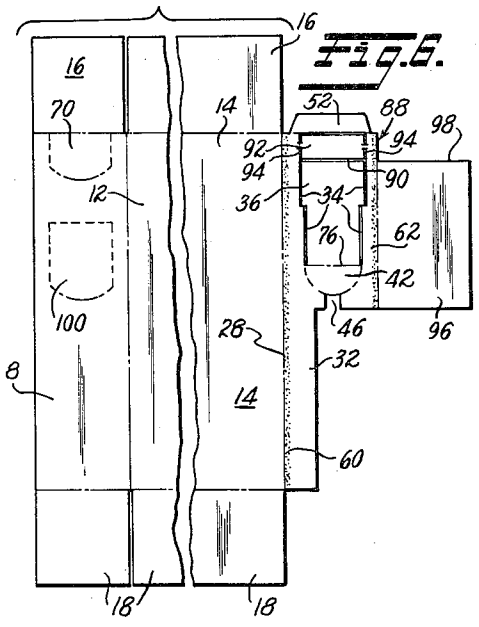


Fig. 6.

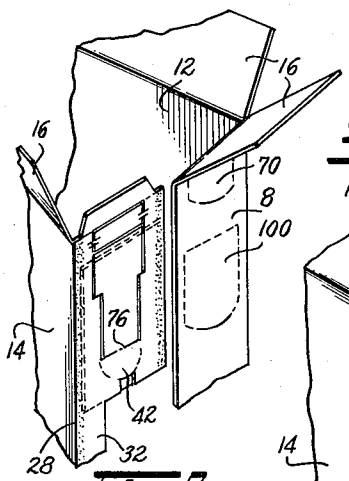


Fig. 7.

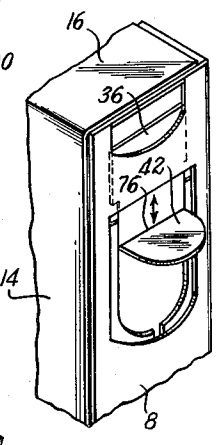


Fig. 8.

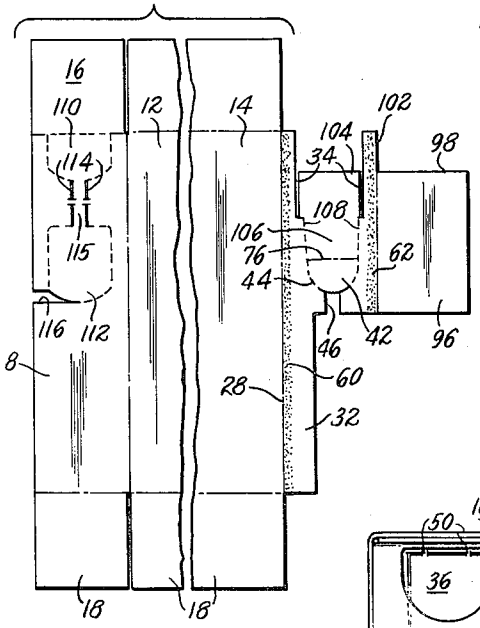


Fig. 9.

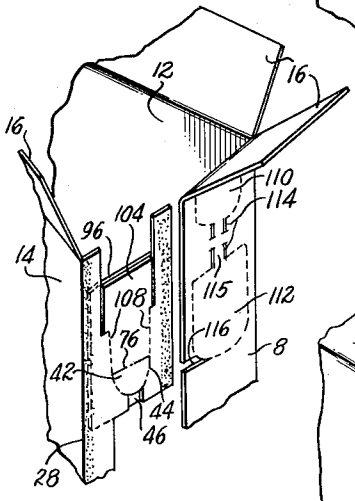


Fig. 10.

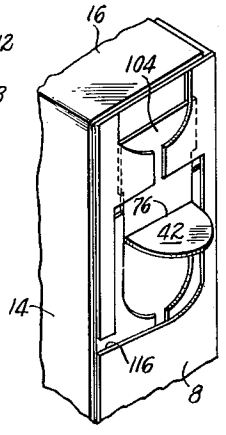


Fig. 11.

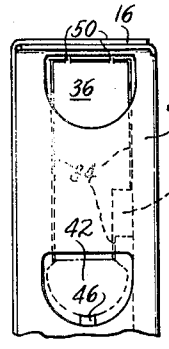


Fig. 12.

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2,950,851

SLIDE CLOSURE CARTON

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17 Claims. (Cl. 229—17)

This invention relates to cartons, and particularly paper cartons having a slide closure formed integrally with the blank from which the carton is fabricated. The invention also extends to the blank itself, having suitable cuts, score lines and perforations whereby assembly of the single blank into a carton will provide a carton having a slide closure for a discharge opening.

In general the device comprises a cardboard or the like carton having a discharge opening in one end wall located at the extreme upper edge thereof whereby the entire contents of the package or carton may be poured therefrom without leaving remnants of the product in the carton. The end wall in which the discharge opening is provided is of 3-ply construction with registering openings in the innermost and outermost plies to define the discharge opening and with a slide closure for that opening initially formed integral with the intermediate ply but separated therefrom, without removal from the carton, prior to use. The innermost and outermost plies thus constitute confining and guiding means for the slide closure and the latter is provided with an integral outwardly extending foldable handle portion, extending through the outermost ply, by which it may be manipulated to open or closed position.

The carton of this invention includes other novel and useful details that will be more fully described hereinafter.

It is, therefore, an object of this invention to provide a closed and sealed carton having integral means separable therefrom to form a slide closure and discharge opening controlled thereby.

It is another object of this invention to provide a carton of the type set forth wherein the discharge opening is provided with one edge substantially coincident with the top wall of a carton whereby to permit complete removal of the contents of the carton.

Still another object of this invention is to provide a slide closure carton of the type set forth which is simple in construction, economical to construct, and reliable and efficient in operation.

A further object is to provide an integral blank arranged for the most economical use of sheet material to form a carton having an integral slide closure.

A still further object of the invention is to provide a carton of the type set forth having removable tear tabs outlined by rows of perforations and means to facilitate removal of those tabs without requiring the employment of tools or other instruments.

Further and additional objects and advantages will become apparent to those skilled in the art as the description proceeds with reference to the accompanying drawings, wherein:

Fig. 1 is a plan view of a blank from which a carton embodying the present invention may be constructed;

Fig. 2 is a perspective view of a portion of the blank of Fig. 1 partially folded into carton-forming condition;

Fig. 3 is a fragmentary perspective view of a portion

of a carton formed from the blank of Fig. 1 and ready for use;

Fig. 4 is a fragmentary perspective view similar to Fig. 3 but illustrating a slightly modified form of construction;

Fig. 5 is a fragmentary end face view of a further modified form of the carton shown in Figs. 1 to 3;

Fig. 6 is a broken plan view of a blank, similar to Fig. 1, but showing a modified form;

Fig. 7 is a fragmentary perspective view, similar to Fig. 2, but showing the blank of Fig. 6 in partially completed condition;

Fig. 8 is a fragmentary perspective view of a portion of the completed carton of Figs. 6 and 7;

Figs. 9, 10 and 11 are similar to Figs. 6, 7 and 8, respectively, but show a further modified form of construction; and

Fig. 12 is a fragmentary view of the carton of Fig. 2 showing the same in a different stage of opening.

Referring first to Figs. 1, 2 and 3, Fig. 1 shows a blank cut from a strip of cardboard or the like and having transverse score lines 2, 4 and 6 defining end wall panels 8 and 10 and side wall panels 12 and 14. As shown, an end wall panel 8 is at one end of the blank and, for purpose of the present description, a side wall panel 14 is considered to be at the other end. Each of the end and side wall panels is provided with a top flap 16 and a bottom flap 18, integral therewith and joined thereto along score lines 20 and 22. The top flaps 16 and bottom flaps 18 are separated by slits 24. The side wall 14, previously referred to as being at the other end of the blank, is provided with a flap indicated generally at 26 joined to its free edge along a score line 28. The flap 26 comprises an upper portion terminating in a lower edge 30 at substantially the longitudinal center line of the blank. A narrower portion 32 extends the full length of the score line 28, as shown. The flap 26 is provided with parallel slits 34 defining the side edges of a slide closure 36 formed integrally therewith. The slits 34 on the righthand side of the slide closure consist of two offset portions separated by a transverse edge 38. The tab 26 is further cut out to provide an opening 40 below the edge 38. At its lower end the slide closure 36 is provided with a handle portion 42 defined by a row of perforations 44 and is thus integrally joined to the flap 26. The flap 26 is cut away, at 46, up to the row of perforations 44 to expose an edge of the handle portion 42 for a purpose to be described. At its upper end the slide closure 36 is defined by a line of spaced slits 48. The slits 48 are in alignment but spaced at their ends to define integral attaching portions 50 whereby the uppermost end of the slide closure 36 is integrally attached to a top tab 52 extending upwardly from the flap 26. The tab 52 spans the entire width of the side closure 36 and constitutes an integral upward extension of the flap 26.

The outermost edge of the flap 26 is integrally secured, along a cut scored fold line 54 to a further flap 56. The line 54 is essentially a score line and is also cut partway through the sheet material along its entire length to minimize resistance to folding and to eliminate bulging of the material at the fold. The flap 56 is of the same length as the flap 26, with its lowermost edge substantially on the longitudinal center line of the blank and with its upper edge in alignment with the upper edge of the flap 26. The upper edge of the flap 56, however, is provided with a notch 58, shown in the drawings as substantially semicircular. Numerals 60 and 62 indicate areas of the flap 26 on which an adhesive is applied during assembly of the carton. The reverse side of the flap 56 is also provided with adhesive along two strips at

the opposite edges whereby the flap **56** may be adhered to the rear face of flap **26** outside the slits **34**, as will be described.

Fig. 1 shows, by dotted lines **64** and **66**, how a plurality of the blanks just described may be arranged to be cut from a single strip of sheet material with a minimum of waste. The lowermost edges of the flaps **26** and **56** can be simultaneously formed in adjacent blanks by a single slit and the flaps **26** and **56** of adjacent blanks use all of the sheet material, without waste, throughout the width of the side wall and the end wall panels. At the other end of the blank, a similar blank may be abutted thereto along its entire width (dotted line **66**) and severed therefrom by a single straight cut **68**.

Fig. 2 shows a blank just described in connection with Fig. 1 at an intermediate stage of folding and assembly to form a complete carton. As shown, the blank has been folded along score lines **2**, **4**, **6** and **28** to define the side and end walls of the carton. The flap **56** has been folded inwardly on cut score line **54** to abut the inner face of flap **26** and has been adhered thereto in the areas previously described, outward of the slide closure **36**, as illustrated in Fig. 2. The end wall panel **8** has been folded to lie outwardly of the flap **56** and will subsequently be adhered to the flap **26** throughout the adhesive areas **60** and **62** to thus complete the side and end walls of the carton. It is to be understood that in actual practice the blank is preferably folded with walls **8**, **10** and **12** lying flat in a single plane, with wall **14** and flap **26** overlying them (with flap **56** glued to the back of flap **26**), and end wall **8** is then folded over and glued to flap **26** and the carton thus assembled in "flat" condition. After the side and end walls have thus been completely assembled and the carton filled with the intended product, the flaps **52** and **16** are folded inwardly in the usual manner to complete the top wall of the carton. It is to be understood that the flaps **18** will have also been folded inwardly and adhered to each other to define the bottom wall of the carton before filling the same.

The end wall panel **8** is provided with a pair of tearout tabs **70** and **72**, each defined by an endless row of perforations. The tab **70** is arranged to be directly outwardly of the notch **58** of the innermost flap **56** and of substantially the same size and shape. The tearout tab **72** overlies the handle portion **42** of the slide closure **36** but is of greater lateral and vertical dimensions than that handle portion. The endless lines of perforations defining the tabs **70** and **72** include a portion **74** of each consisting of a continuous slit defining the bottom edge of each tab. That slit permits insertion of a fingernail or the like to initiate tearing of the tab from the end wall panel **8** and its complete removal therefrom. After the tabs **70** and **72** have been removed (as shown in Fig. 12) from the filled and closed carton, the handle portion **42** of the slide closure becomes visible and accessible through the opening left by tab **72** and the cutout **46**, previously referred to is also accessible therethrough. The cutout **46** exposes the bottom edge of the handle portion **42** whereupon it may be engaged by a fingernail or the like to tear the handle portion from the flap **26** along the line of perforations **44**. After the handle portion has been so separated from its parent flap, it may be folded outwardly through the opening left by tab **72** and along score line **76** so that the handle portion projects outwardly of the outer end wall panel **8** as shown in Fig. 3. The parts are so designed and dimensioned that the score line **76** substantially underlies the upper edge of the opening left by tab **72** when the closure is in closed position. With the handle **42** thus folded outwardly, the same may be pulled in a downward direction to rupture the portions **50** by which the slide closure **36** is secured to the tab **52** and thus free the slide closure **36** for up and down sliding movement, as illustrated in Fig. 3.

As will be obvious, the slide closure **36** may be moved downwardly until the edge **38** thereof engages the bottom of the cutout **40**, which constitutes a stop to thereby limit the extent of withdrawal of the slide closure **36** in a downward direction. The parts are so dimensioned that the stop is not engaged until the discharge opening is completely open, thus permitting the pouring of the contents from the carton. As is also obvious from the description thus far, the discharge opening of the carton extends completely up to the top wall whereby every last particle of the contents may be poured from the carton when the closure is in the open position. During periods of nonuse, with the closure in its upper or closed position, the handle portion **42** may be folded downwardly to lie within the end wall panel **8** and thus eliminate any lateral projections that might interfere with proper storage of the carton.

Referring again to Fig. 1, it is to be noted that the cutout **46** and the parallel slits **34** completely separate the outer portion of flap **26** from the inner portion thereof and those portions are held in integral relation only by the material between the perforations of the row **44** defining the handle portion **42**. If this were the only connection therebetween, some difficulty might be encountered in folding flap **56** along score line **54**. To eliminate such difficulty the flap **52** is provided and that flap along with the integral portions **50** serves to stiffen the flap **26** to facilitate folding of the parts in the manner described. The portions **50** further insure that the closure **36** is held in its closed position until it is forcibly moved to its open position after separation and folding of the handle portion **42**.

As will be obvious from Figs. 2 and 3, the cutout **46** does not constitute an opening through the carton that would permit loss of product after the tab **72** is removed, because the innermost layer or flap **56** underlies the cutout **46** and effectively closes the same.

Fig. 4 illustrates a modification that is in all respects identical to the carton of Fig. 3 except that the rows of perforations defining the tearout tabs **70** and **72** are not provided with the continuous cut portion **74** previously described. In this modification the end wall panel **8** is cut and the portions thereof removed, as shown at **80** and **82**. The cutout portions extend to and partially along the lines of perforations whereby an edge of each of the flaps **70** and **72** is exposed for ready grasping to facilitate its removal.

Fig. 5 shows a still further modification wherein the tearout tabs **70'** and **72'** are defined by the rows of perforations described but wherein a segmental portion of the panel **8** is cut away adjacent the rows of perforations to define openings **84** and **86** adjacent the perforations. The openings **84** and **86** constitute means to expose an edge portion of the tearout tabs whereby they may be readily grasped and removed from the carton in the manner described.

In the modification shown in Figs. 6, 7 and 8, parts bearing similar numerals are substantially identical to corresponding parts of Figs. 1 to 3. However, in this modification the flap **88** is provided with the parallel slits **34** defining a slide closure **36** having a handle portion **42** but the upper end of the slide closure **36** is defined by a transverse slit **90** extending completely across between the slits **34**. The slit **90** is located substantially below the upper edge of the flap **88** and the slide closure **36** is initially in its open position. The space between the slit **90** and the upper edge of tab **88** is occupied by an integral portion **92** of sheet material and is outlined by slits interrupted at **94** to define integral attaching portions. The portion **92** and the attaching portions **94** serve to stiffen the flap **88** to facilitate folding of the blank into completed carton form, and the portion **92**, being left attached to the blank, eliminates the punching of an opening and disposal of waste during the die-cutting operation. The outermost flap **96** is a plain, rectangular flap having an upper straight edge **98** aligned

with the slit **90**. When the carton is assembled the edge **98** is spaced downwardly from the top wall of the carton and defines the discharge opening. The outer end panel **8** is provided with tearout tabs **70** and **100** overlying the discharge opening and the handle portion **42**, respectively. The tab **100** is of considerably greater vertical extent than the corresponding tab previously described. When the carton is assembled and the tearout tabs removed, the handle **42** is severed and folded outwardly, as also previously described, whereupon the slide closure **36** is ready for manipulation. However, upon removing the tab **70** and the portion **92** of the intermediate flap, the discharge opening for the carton is open since the closure **36** is formed in its lowermost or open position. The tearout tab **100** is sufficiently long so that the handle **42** can be folded outwardly therethrough and then moved upwardly to slide the closure **36** to closed position.

In the modification of Figs. 9, 10 and 11, in which similar parts are numbered identical to portions previously described in connection with the other embodiments, the intermediate flap **102** is provided with parallel slits **34** defining opposite edges of a closure slide **104**. The slits **34**, however, extend downwardly only a relatively short distance and a shank portion **106** of the slide closure **104** is joined to the flap **102** by opposed downwardly converging rows of perforations **108**. A handle portion **42** is provided at the lower end of the shank **106** and is likewise defined by a row of perforations **44**. The uppermost edge of the slide closure **104** is in alignment with the upper edge of inner flap **98** for the same reasons and purpose as described in connection with Figs. 6 through 8. In this modification the bridging tab **52** of Fig. 6 and the filler portion **92** are omitted to simplify the dies used for forming the blank and to eliminate the need for cut-outs. However, since the shank portion **106** of the slide closure **104** and the handle portion **42** are integrally joined to the flap **102**, by the described rows of perforations, the flap **102** has sufficient rigidity to permit its being folded and manipulated during formation of the carton.

The end wall panel **8** of this modification is also provided with tearout tabs **110** and **112**, corresponding generally in size and shape to the tabs **70** and **100** of Fig. 6. However, interrupted parallel slits **114** extend between the tabs **110** and **112** and define a neck **115** therebetween. The interrupted portions of the slits **114** provide a temporary but readily severable integral connection between the neck **115** and the panel **8**. The panel **8** is further cut away as shown at **116** to expose an edge portion of the tab **112**. By this construction the tab **112** may be readily engaged and torn from the carton and continued outward movement thereof results in severing the integral connections between the neck **115** and panel **8** and that neck then serves as a handle by which the tab **110** may also be removed.

When the carton is fully assembled as shown in Fig. 11, the tabs **110** and **112** may be removed in the manner described, the handle portion **42** folded outwardly on score line **76** as shown in Fig. 11 and further outward movement of the handle will result in severing the shank **106** along the lines of perforations **108**. If the lines of perforations **108** were parallel the slide closure would have rough edges after severance which would interfere with free sliding movement of the closure to and from closed position. However, since the rows of perforations **108** converge downwardly the rough edges thereof will not interfere with upward movement of the closure to closed position.

While a limited number of specific embodiments of the invention have been shown and described herein, it is to be understood that these embodiments are merely exemplary of the principles of the invention which encompasses other forms and modifications falling within the scope of the appended claims.

I claim:

1. In a carton having opposed side walls, end walls and top and bottom walls defined by superimposed flaps, at least a portion of one of said end walls, adjacent said top wall, comprising three superimposed layers of sheet material, the innermost of said layers having an upper edge portion spaced from said top wall and defining a discharge opening therebetween, the intermediate layer having parallel slits therein defining the edges of a slide closure having one end adjacent said discharge opening, the other end of said slide closure being integrally joined to said intermediate layer, within the outline thereof, along a line of perforations defining a handle portion, the outermost of said layers having integral tear-out tabs therein defined by lines of perforations and overlying said discharge opening and handle portion, respectively.

2. A carton as defined in claim 1 wherein said intermediate layer is integrally joined along a fold line coincident with one of its side edges to an adjacent edge of one of said side walls, the other side edge of said intermediate layer being integrally joined, along a fold line, to the adjacent edge of said innermost layer, said outermost layer being integrally joined, along a fold line, to the adjacent edge of the other side wall.

3. A carton as defined in claim 1 wherein said intermediate and innermost layers are integrally joined to one of said side walls and extend downwardly from said top wall substantially half way to said bottom wall.

4. A carton as defined in claim 1 wherein said three layers are adhesively bonded in face-to-face relation at areas outwardly of said slide closure.

5. A carton as defined in claim 1 wherein a portion of said intermediate layer is cut away adjacent said line of perforations defining said handle portion to expose an edge portion thereof.

6. A carton as defined in claim 1 wherein a portion of said outermost layer is cut away adjacent at least one line of perforations defining said tear-out tabs whereby to expose an edge portion of said tab.

7. A carton as defined in claim 1 including parallel interrupted slits joining said tear-out tabs in said outermost layer, a portion of said layer being cut away adjacent one of said tabs to expose an edge portion thereof.

8. In a carton having opposed side walls, end walls and top and bottom walls; at least a portion of one of said end walls, adjacent said top wall, comprising three superimposed layers of sheet material, the innermost of said layers having a notch at the upper edge thereof defining a discharge opening, the intermediate layer having parallel slits therein defining the edges of a slide closure having one end overlying and closing said discharge opening, said one end being integrally joined to said carton along a line of spaced slits substantially coincident with the upper edge of said one end wall, the other end of said slide closure being integrally joined to said intermediate layer along a line of perforations defining a handle portion, the outermost of said layers having integral tear-out tabs therein defined by lines of perforations and overlying said discharge opening and handle portion, respectively.

9. A carton as defined in claim 8 wherein said intermediate layer includes a flap portion integrally joined thereto along a score line coincident with said line of spaced slits, said flap portion underlying said top wall.

10. In a carton having opposed side walls, end walls and top and bottom walls, at least a portion of one of said end walls, adjacent said top wall, comprising three superimposed layers of sheet material, the innermost of said layers terminating in an upper transverse edge spaced downwardly from said top wall and defining a discharge opening therebetween, the intermediate layer having parallel slits therein defining the edges of a slide closure having a transverse end edge substantially aligned with said upper transverse edge of said innermost layer, said intermediate layer being cut away above said trans-

verse end edge between said parallel slits, the other end of said slide closure being integrally joined to said intermediate layer along a line of perforations defining a handle portion, the outermost of said layers having integral tear-out tabs therein defined by lines of perforations and overlying said discharge opening and handle portion, respectively.

11. A carton as defined in claim 10 wherein said intermediate layer includes a flap portion integrally joined thereto, outwardly of said parallel slits, along a score line substantially in the plane of said top wall.

12. In a carton having an integrally formed slide closure therein, a wall portion of said carton being formed of multi-ply sheet material and having a line of perforations in one ply thereof defining a severable area, a portion of said ply adjacent said line of perforations being cut away to expose an edge portion of the sheet material constituting said severable area, another ply of said wall portion closing the opening formed by said cut-away portion.

13. A blank of sheet material for forming a carton having a slide closure, comprising; a generally rectangular sheet of material having transverse score lines dividing said sheet into end wall and side wall panels, there being an end wall panel at one end and a side wall panel at the other, a first flap integrally joined to an edge of said last-named side wall panel along a score line, a second flap integrally joined to the edge of said first flap opposite said score line, said first flap having slits and perforations therein defining a separable slide closure, said first and second flaps each being of a width substantially equal to the width of said end wall panels.

14. A blank as defined in claim 13 wherein said first and second flaps are of a length no greater than one half the length of said edge of said side wall panel, said first flap being joined to said side wall panel at one end of said edge thereof.

15. A blank as defined in claim 14 including a further flap portion, narrower than said first flap and extending therefrom along the remainder of said edge of said side wall panel.

16. In a carton having opposed side walls, end walls and top and bottom walls defined by superimposed flaps, at least a portion of one of said end walls, adjacent said top wall, comprising three superimposed layers of sheet material, the innermost of said layers having an upper edge portion spaced from said top wall and defining a discharge opening therebetween, the intermediate layer having parallel slits therein defining the edges of a slide closure having one end adjacent said discharge opening, the other end of said slide closure being integrally joined to said intermediate layer, within the outline thereof, along a line of perforations defining a handle portion, the outermost of said layers having at least one integral tear-out tab therein defined by lines of perforations and overlying said discharge opening.

17. A carton as defined in claim 16 wherein one of said layers extends throughout the area of said one end wall, the others of said layers extending downwardly from said top wall a distance no greater than one half the height of said end wall.

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