Nov. 5, 1968 G. L. MEYERS 3,409,205

CARTON WITH ATTACHED COVER

Filed Sept. 21, 1966 5 Sheets-Sheet 1

Fig. 1

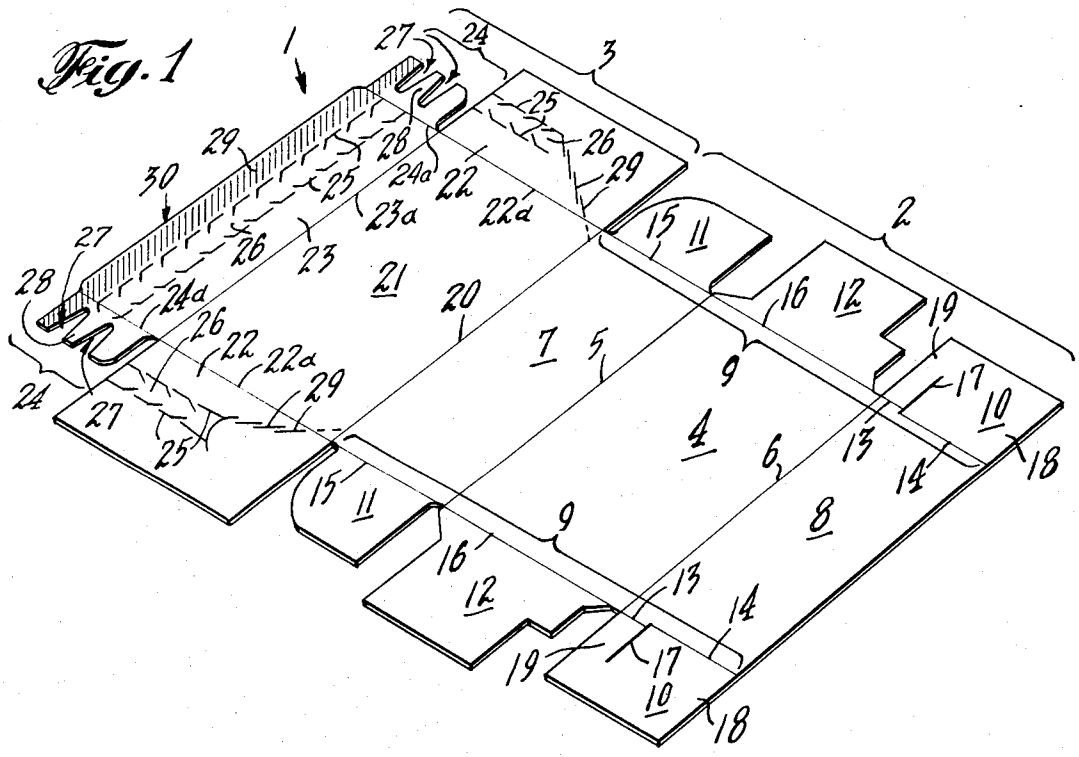
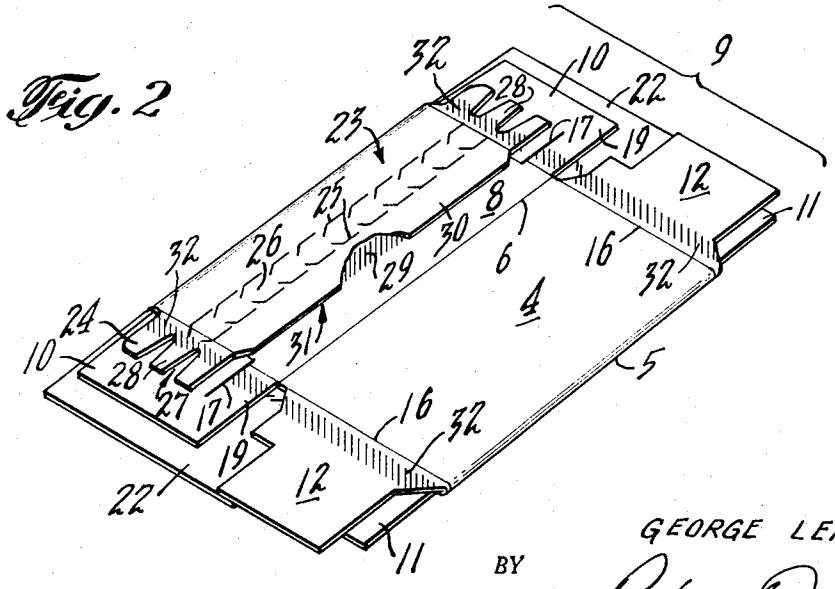


Fig. 2



INVENTOR.
GEORGE LEROY MEYERS

BY Patrick J. Walsh.
ATTORNEY

Nov. 5, 1968 G. L. MEYERS 3,409,205

CARTON WITH ATTACHED COVER

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Fig. 3

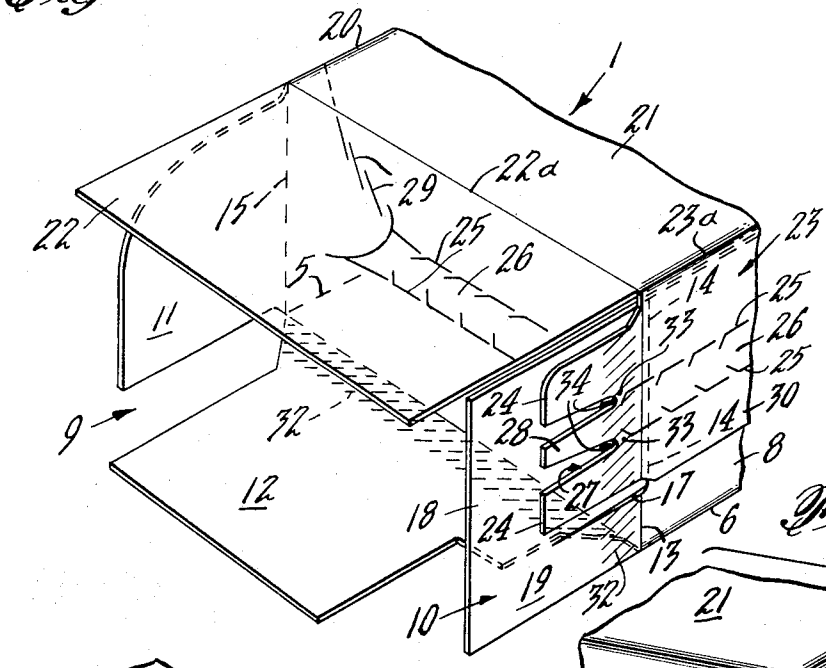


Fig. 5

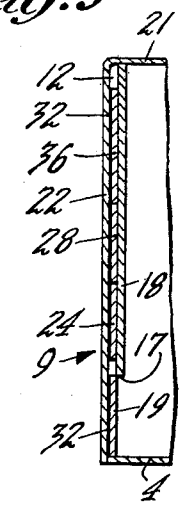
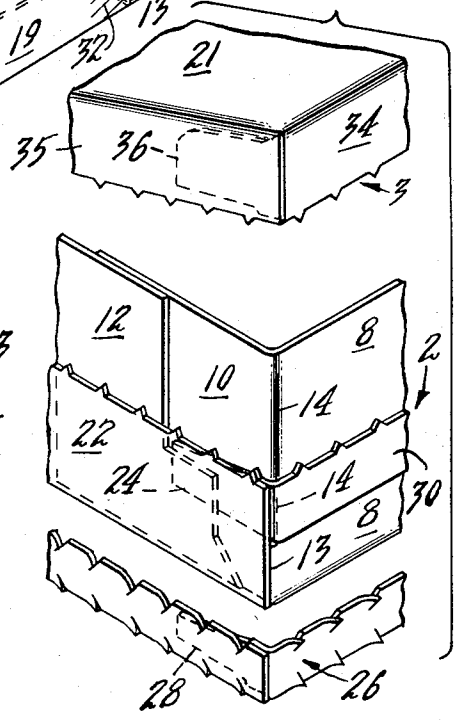


Fig. 6



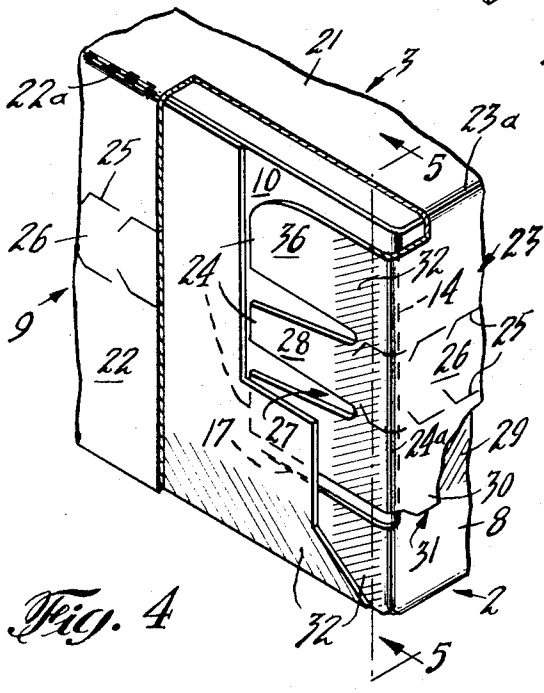


Fig. 4

INVENTOR.
GEORGE LEROY MEYERS

BY

Patrick J. Walsh.

ATTORNEY

Nov. 5, 1968 G. L. MEYERS 3,409,205

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Fig. 7

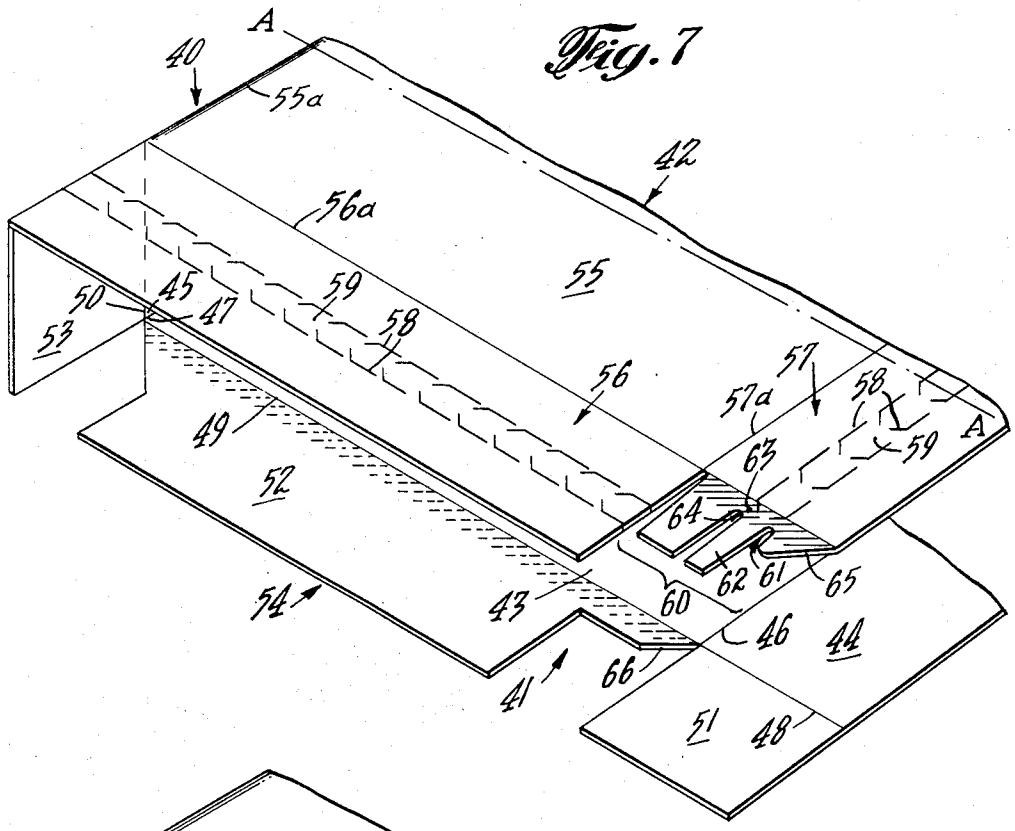
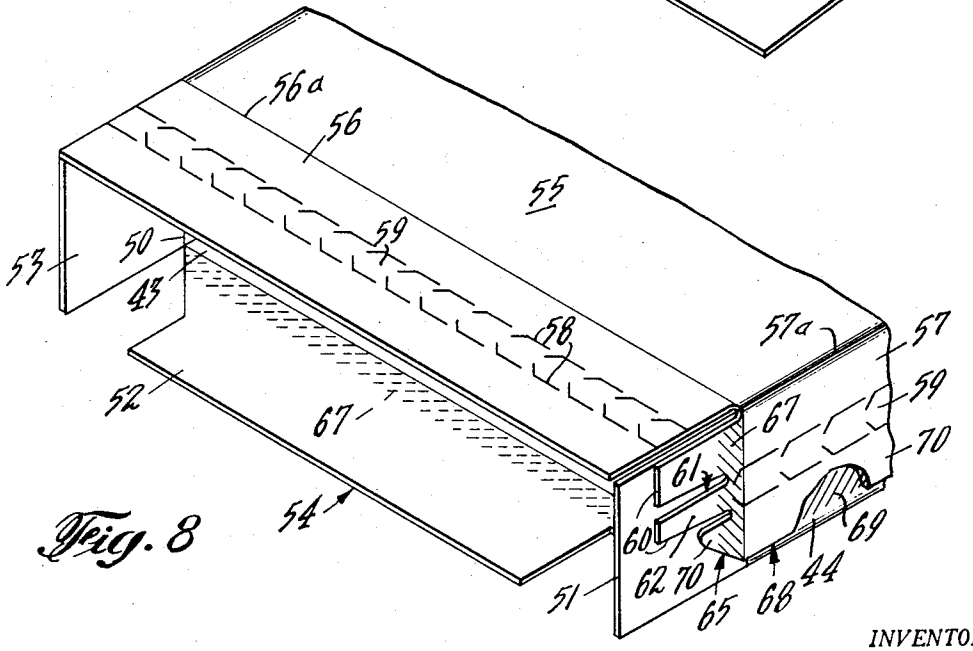


Fig. 8



INVENTOR.
GEORGE LEROY MEYERS

BY

Patrick McGrath.
ATTORNEY

Nov. 5, 1968 G. L. MEYERS 3,409,205

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Fig. 12

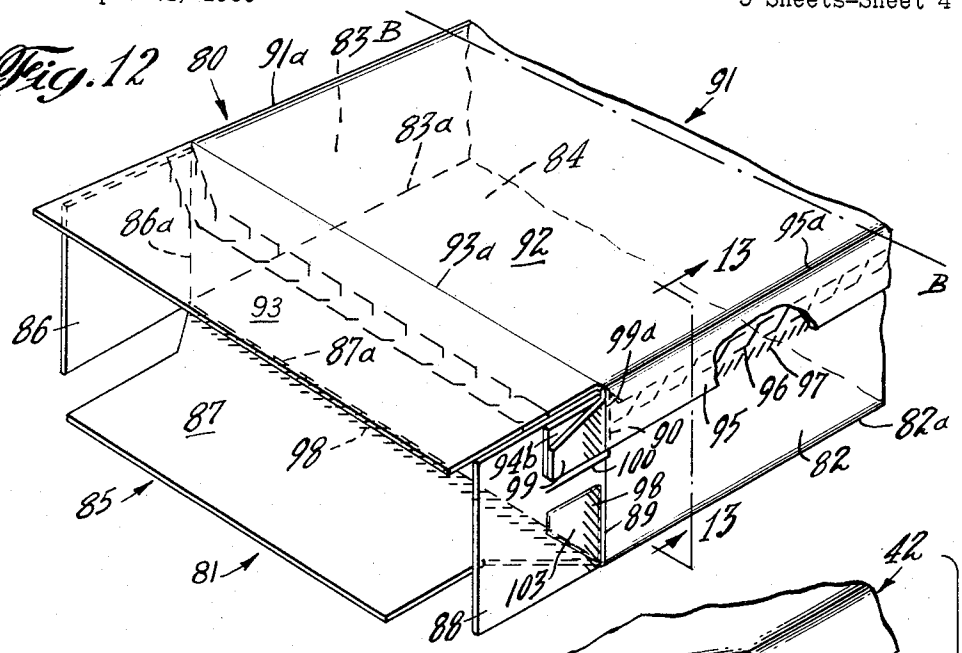
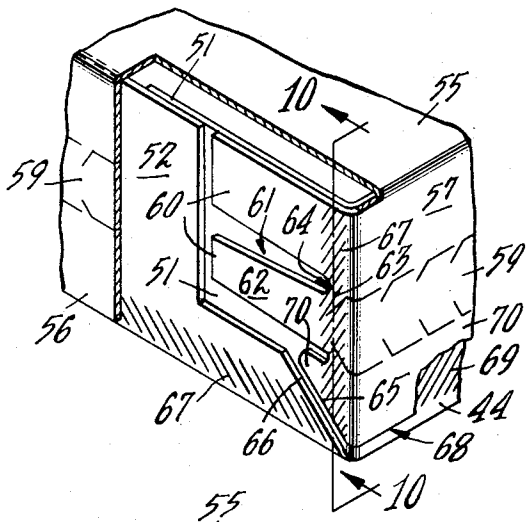


Fig. 9



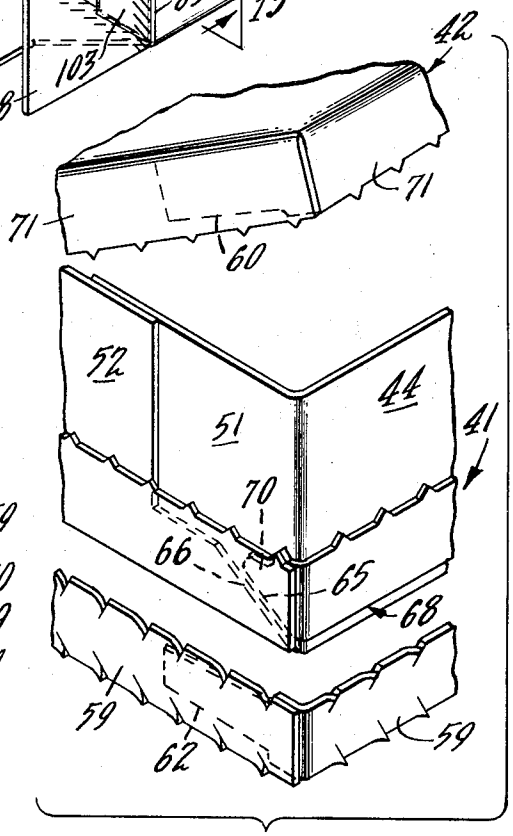


Fig. 11

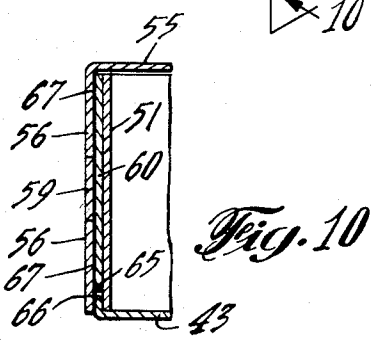


Fig. 10

INVENTOR.
GEORGE LEROY MEYERS
BY
Patrick J. Walsh.
ATTORNEY

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Fig. 14

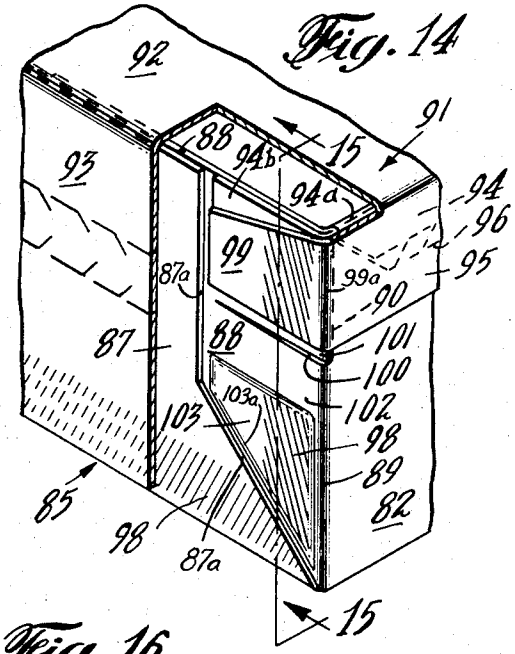


Fig. 15

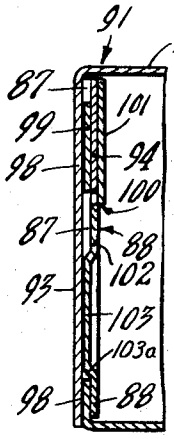


Fig. 16

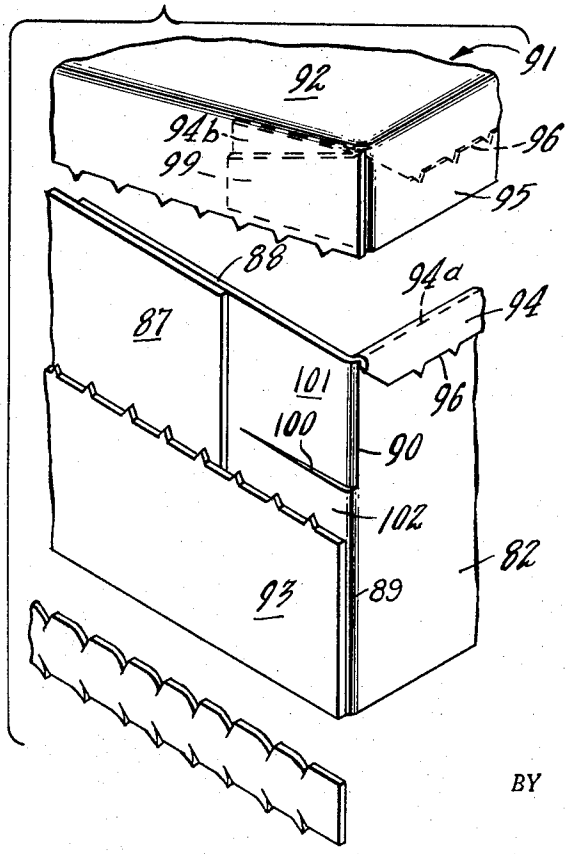
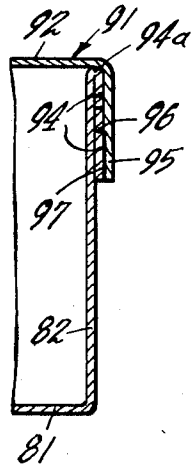


Fig. 13



INVENTOR.
GEORGE LEROY MEYERS

BY Patrick J. Walsh
ATTORNEY

United States Patent Office 3,409,205
Patented Nov. 5, 1968

3,409,205

CARTON WITH ATTACHED COVER

George Leroy Meyers, Menasha, Wis., assignor to American Can Company, New York, N.Y., a corporation of New Jersey

Filed Sept. 21, 1966, Ser. No. 581,107
12 Claims. (Cl. 229—51)

ABSTRACT OF THE DISCLOSURE

A blank of sheet material preferably paperboard for forming a carton having a receptacle portion and a cover portion. The carton (when formed from the blank) has a cover with a depending skirt portion which telescopes over the upper portion of the receptacle walls. Each end of the carton has an end closure comprising end closure flaps connected to the front, bottom and rear receptacle walls and to the cover top panel. The end closure flaps are arranged so that adhesive zones in the end closure will lie in common planes.

The present invention relates to containers, and more particularly, to a new carton construction.

The carton according to the present invention is made from a flat blank of sheet material preferably paperboard and includes a receptable and an attached cover. The receptacle or box portion has a bottom panel, front and rear walls, and end flaps which form the end or side walls of the receptacle. The cover is hingedly connected to the receptacle and includes a depending skirt portion which telescopes over the receptacle walls. Cartons of the above description are used for various products like cake, frozen foods, or ice cream. The preferred embodiment of the present invention improves this type carton and particularly the cover and end closure constructions.

According to the present invention the end closure of the carton is constructed to receive an adhesive applied in a straight line to the end closure and which straight line of adhesive aids in the formation of both the cover and the end closure of the carton. Straight line application of adhesive or pre-applied hot melt is easier and faster than pattern applications of adhesives or hot melt.

An object of the present invention is to provide a carton blank which may be folded flat for application of adhesive on a straight line gluing machine.

Another object of the present invention is to provide an end closure construction which may be sealed with the application and activation of a straight line pattern of adhesive.

Another object of the present invention is to provide an end closure construction which gives an improved seal.

A further object of the present invention is to provide a new end closure particularly suitable for cartons having tamperproof features.

Other and further objects of the present invention will be apparent to those skilled in the art upon employment of the invention in practice.

A preferred embodiment has been chosen to illustrate the principles of the present invention and is illustrated in the accompanying drawings wherein:

FIG. 1 is a perspective view of a carton blank according to the present invention;

FIG. 2 is a perspective view of the carton blank of FIG. 1 which has been folded into the form of a flat open ended, side seamed tube and which has applied thereto straight line strips of adhesive for sealing the end closure;

FIG. 3 is a perspective view of the blank of FIG. 2 in set up condition for end filling and particularly illustrating the construction of the end closure for the carton;

FIG. 4 is a fragmentary view of the end closure of the carton shown in FIG. 3 illustrating the components of the end closure in a sealed position;

FIG. 5 is a section view taken along line 5—5 of FIG. 4;

FIG. 6 is a fragmentary, perspective view of the carton of FIG. 4 which has been opened;

FIG. 7 is a fragmentary, perspective view of a modified carton embodying the principles of the present invention;

FIG. 8 is a fragmentary, perspective view illustrating the end closure components of the carton of FIG. 7 prior to being closed and sealed;

FIG. 9 is a fragmentary, perspective view, partially broken away of the carton of FIG. 8 with the end closed and sealed;

FIG. 10 is a section view taken along line 10—10 of FIG. 9;

FIG. 11 is a fragmentary, perspective view of a carton of FIGS. 8 through 10 which has been opened;

FIG. 12 is a fragmentary, perspective view of a modified carton embodying the principles of the present invention;

FIG. 13 is a section view along line 13—13 of FIG. 12;

FIG. 14 is a fragmentary, perspective view illustrating in a closed position the component parts of the end closure of the carton of FIG. 12;

FIG. 15 is a section view taken along line 15—15 of FIG. 12; and

FIG. 16 is a fragmentary, perspective view of the carton of FIGS. 12 through 15 which has been opened.

Referring now to the drawings, and more particularly, to FIG. 1, the preferred embodiment of the present invention comprises a carton blank **1** having a receptacle portion **2** and a cover portion **3**.

The receptacle **2** includes a bottom panel **4** connected respectively by scored lines **5** and **6** to a rear wall **7** and a front wall **8**. The end walls or closures **9** for the receptacle are formed by closure flaps **10, 11, 12** hingedly connected by scored lines (**13–16**) respectively to the front and rear walls, and bottom panel of the receptacle. Each end wall **9** is formed by joining the front wall flap **10**, the rear wall flap **11** and the bottom panel flap **12**.

Each front wall flap **10** is connected to the front wall **8** by a pair of scored lines **13** and **14** which are offset with respect to each other. Preferably, the scored lines **13** and **14** are offset a distance equal to one thickness of carton stock. Each front wall flap also includes a slit **17** which allows each front wall flap **10** to pivot in two planes, i.e., an upper portion **18** of the flap **10** pivots about one offset scored line **14**, and a lower portion **19** about the other offset scored line **13**. The slit **17** facilitates this double pivot action which provides improved sealing action of the end walls **9** as more fully described below.

The cover portion **3** of the carton blank **1** joins the receptacle **2** by a scored line **20**.

The cover includes a top panel **21**, end cover panels **22**, and a front cover panel **23** all hingedly connected by scored lines **22*a*** and **23*a***. Each front cover panel **23** includes a pair of cover corner flaps **24** joined by scored lines **24*a***. The front cover panel **23** and the end cover panels **22** include parallel lines of weakness **25** which define a zipper **26** for opening the carton. A pair of V notches **27** divides each corner flap **24** to form a zipper tab **28** by which the zipper segments **26** are secured together.

Additional lines of weakness **29** permit pivoting of the cover back to the rear wall score line.

As shown in FIGS. 1 and 2, the front cover panel **23** joins the front wall **8** by means of a strip of adhesive **29**

applied to a glue flap portion **30** of the front cover panel **23** to form a side seam **31**.

One of the important features of the present invention is a strip **32** of hot melt or adhesive which is applied to each end closure **9** of the carton. The strip of hot melt may be applied by a straight line gluer machine. Each strip **32** of glue extends across each bottom panel flap **12**, front wall flap **10** and corner flap **24**. By means of these strips of adhesive **32** the cover **3** is formed, the end closures **9** are sealed, and the three sided opening zipper **26** is formed.

The following description of the formation of the carton gives a better understanding of the relationship of the adhesive strip to the end closure and cover constructions. Since each end closure is identical only one need be described.

As shown in FIG. 3 the side seamed blank is squared into the form of a tube for receiving cake or crackers or other product to be packaged. When the carton blank **1** is positioned as in FIG. 3, the front cover panel **23** is susceptible to bending inwardly along the upper line of weakness **25**. The front cover panel resists this bending because carton stock indicated at **33** separates the line of weakness **25** from the apex **34** of the V notches **27**.

To form each end closure **9** of the carton blank **1** the flaps **10–12** and the panel **22** are pivoted about their scored lines and are adhered together.

The rear wall flap **11** and the front wall flap **10** pivot first. The front wall flap **10** pivots about two scored lines **13** and **14** so that the adhesive strip **32** lies in a common plane for better adhesion to the corresponding surface of the end cover panel **22**. In motion, the lower portion **19** of the front wall flap **10** pivots in a first plane about the lower scored line **13**. The upper portion **18** of the front wall flap pivots together with the corner flap **24** into the closed position by reason of their adhesive connection at the glue flap **30**. During this pivoting action, the upper part **18** of the flap pivots on the offset score **14**. The slip **17** accommodates the displacement of the upper **18** and lower **19** portions of the front wall flap **10**. During the same pivoting action, the corner flap **24** pivots about its scored line **24***a* (which is aligned with the lower scored line **13**) so that the adhesive strip **32** occurs in a common plane the better to seal the cover end panel **22** to the end closure **9** (see FIG. 5). The offset scored lines are spaced by one carton thickness to accommodate the corner flap in the common plane.

Next the bottom panel flap **12** and then end cover panel **22** pivot into place for securement to the adhesive strip and formation of the end closure **9**.

After the end closure **9** is formed, the cover **3** is secured to the receptacle **2** by the glue flap **30** and by the adhesive strip **32**. The zipper segments **26** are secured together by the adhesive strip **32** on the glue tab **28**. The cover skirt panels **34** and **35** are joined by means of the adhesive strip on the cover skirt tab **36**. This relationship is apparent in FIG. 6. When the zipper **26** is removed the cover **3** may be lifted because there is no adhesive joint between the cover **3** and the receptacle **2**.

It will be observed therefore that applicant has a novel end closure construction by which a straight line of adhesive forms the end closure, forms the cover, and forms an opening zipper. When the zipper is removed the cover is free to open.

FIGS. 7 through 11 illustrate a modified form of the present invention. The carton blank **40** shown in FIG. 7 includes a receptacle portion **41** and a cover portion **42**. The receptacle **41** includes the usual bottom panel **43** and front **44** and rear **45** walls connected by scored lines **46** and **47**. Scored lines **48–50** connect the end closure flaps **51–53** (which form end closure **54**) respectively to the front wall **44**, the bottom panel **43** and the rear wall **45**. The carton blank **40** is symmetrical about a median line A—A therefore only one end of the carton blank need be described.

The cover portion **42** of the carton blank **40** includes a top panel **55** connected to the receptacle by scored line **55***a* and depending cover panels **56** and **57** connected by scored lines **56***a* and **57***a*. The depending cover panels include a pair of end cover panels **56** and a front cover panel **57**. The depending cover panels **56** and **57** are divided along their length by spaced lines of weakness **58** to form an opening zipper **59** around three sides of the carton. Each cover corner flap **60** of the front cover panel **57** is notched **61** to isolate a glue tab **62** which secures the zipper portions **59** together.

A small amount of carton stock indicated at **63** in the front cover panel separates the upper line of weakness **58** from the apex **64** of the V notch **61** to prevent the front cover panel **57** from bending inwardly when the carton is in tubular form (FIG. 8).

It will be observed (FIG. 7) that the front cover panel **57** and the bottom closure flap **52** have mitered edges **65** and **66**. These mitered edges prevent overlap between the corner flap **60** and the bottom closure flap **52**. Without overlap, each of these flaps lies in the same plane (see FIG. 10) and together present a strip of adhesive **67** to the end cover panel **56** for an improved seal of the end closure **54**.

FIG. 8 illustrates the modified carton **40** after the side seam **68** has been formed. The side seam **68** may be formed by adhering the front cover panel **57** to the front wall **44** by means of adhesive strip **69** on glue flap **70**. It will be noted that the zipper **59** is above the side seam glue strip **69**. When the carton has been side seamed, the carton blank may be folded about opposed scored lines **47** and **57***a* for the application of a strip of adhesive or hot melt **67** as described above in connection with FIG. 2.

To form the end closure **54** (FIGS. 8 and 9), the flaps **51–53**, **56** and **60** are folded inwardly about their respective scored lines. First the rear wall flap **53** and the front wall flap **51** are folded inwardly about their scored lines. The corner flap **60** of the front cover panel **57** follows the front wall flap **51** because of the side seam connection **68** therebetween. Next the bottom flap **52** is folded upwardly. In this position, the straight line of adhesive **67** covers the bottom portion of the bottom closure flap **52** and one edge of the corner flap **60**. The adhesive strip **67** lies in a common plane FIGS. 9 and 10 because the mitered edges **65** and **66** prevent overlap of the bottom flap **52** with the corner flap **60**. To seal the end closure, the end cover panel **56** is sealed along the adhesive strip **67**.

The carton **40** may be opened by removing the opening zipper **59** (FIG. 11) and by lifting the cover **42** which separates freely because there is no glued connection between the depending skirt **71** of the cover **42** and the wall portions **44**, **51** and **52** of the receptacle **41**.

FIGS. 12 through 16 illustrate a modification of the present invention. The blank **80** in FIG. 12 includes a receptacle portion **81** defined by a front wall **82**, a rear wall **83** and a bottom panel **84** connected by scored lines **82***a* and **83***a*. The end closure **85** for the carton includes a rear wall flap **86**, a bottom panel flap **87** and a front wall flap **88** connected respectively by scored lines **86***a*, **87***a*, **89** and **90**.

Since the carton **80** is symmetrical about line B—B, only one end of the carton need be described.

The cover portion **91** joins the receptacle at scored line **91***a* and includes a top panel **92** and a pair of end cover panels **93** connected by scored lines **93***a*. The carton includes a tamperproof feature which is more particularly illustrated in FIG. 13. The tamperproof feature includes a supplemental panel **94** which is connected at one end to a front cover panel **95** and at the other end by scored line **94***a* to the front wall panel **82**. The front cover panel depends from cover panel **91** by scored line **95***a*. A line of weakness **96** separates the upper and lower portions of the supplemental panel **94**. In order to open the cover **91** with respect to the receptacle **81** the portions of the supplemental panel **94** separate along the line of weakness **96**.

Cartons having this construction are disclosed in United States patent to George L. Meyers No. 3,191,848.

A side seam **97** for the carton blank **80** is accomplished by adhering the front cover panel **82** to the supplemental panel **94** below the line of weakness **96**.

When the carton of FIG. 12 is in the form of a flat tube (folded flat at opposed scored lines **83***a* and **95***a*) a straight line of adhesive **98** may be applied to the end closure in the same manner as with the blank illustrated in FIG. 2. The line of adhesive **98** extends from each cover corner flap **99** of the front cover panel **95**, along the front wall flap **88**, and along the bottom flap **87**.

The end closure **85** (FIGS. 14 and 15) of the modified construction is set up by closing the rear wall flap **86** and the front wall flap **88** and then the bottom panel flap **87**. In this position, FIG. 14, it will be observed that the straight line of adhesive **98** is now in the form of an L which extends along the side edge of the corner flap **99**, the front wall flap **88** and the bottom flap **87**. It will be observed that the adhesive **98** (FIG. 15) lies in the same plane to provide improved adherence between the adhesive line **98** and the cover end panel **93**.

The staggered scored lines **89** and **90** and the slit **100** permit pivoting of upper **101** and lower **102** portions of the front wall flap **88** in separate planes which are spaced slightly from each other. The spacing of the planes is controlled by the distance between the scored lines **89** and **90** which is preferably equal to the thickness of carton stock. Since the cover corner flap **99** and the terminal portion **94***b* of supplemental panel **94** constitutes a double thickness of carton stock, an embossed area **103** (best shown in FIGS. 14 and 15) brings the front wall panel **88** into the same plane as the cover corner flap **99**. The cover corner flap scored line **99***a* and the scored line **89** are aligned so their respective panels lie in the same plane. In this manner, the cover end panel **93** may be secured over the entire adhesive strip **98** in forming the end closure **85**.

It will be observed that the bottom panel closure flap **87** is recessed at **87***a* to expose the front wall flap **88** and the cover corner flap **99** to sealing relationship with the end cover panel **93**. It will be further observed that the embossment **103** has an edge **103***a* which follows the contour of the recessed **87***a* to provide improved sealing connection with the end cover panel **93**.

To open the carton **80** (FIG. 16) it is necessary to separate the cover **91** along the lines of weakness **96** in the supplemental panel **94** and the cover **91** will pivot about the rear wall scored line **91***a* (FIG. 12).

Applicant has provided a tamperproof carton having an improved end closure. The end closure is sealed by means of an easily applied straight line of glue. When a zipper type tamperproof feature is used, the straight line glue application permits non-critical registry of each portion of the zipper. By removing the zipper this tamperproof carton can be easily opened.

Various changes may be made to the structure embodying the principles of the invention. The foregoing embodiment is set forth in an illustrative and not in a limiting sense. The scope of the invention is defined by the claims appended hereto.

Having thus described my invention, I claim:

1. An end closure construction (**9**) for a carton with a receptacle portion (**2**) having front (**8**) and rear (**7**) walls and a bottom panel (**4**), and with a cover portion (**2**) having top panel (**21**) with a depending front cover panel (**23**) said end closure (**9**) comprising an end cover panel (**22**) and closure flaps (**10, 11, 12**) connected to the rear wall (**7**), the bottom panel (**4**), the top panel (**21**), and the front wall (**8**), a cover corner flap (**24**) connected to the front cover panel (**23**) and overlying the front wall closure flap (**10**) said front wall closure flap (**10**) being connected to the front wall (**8**) by a pair of offset scored lines (**13, 14**) and having a slit (**17**) facilitating the pivoting of the front wall closure flap (**10**) in two planes to accommodate the cover corner flap (**24**) within the end closure (**9**).

2. A carton comprising a receptacle (**2**) and a cover (**3**), the receptacle having front (**8**) and rear (**7**) walls and a bottom panel (**4**), the cover (**3**) having a top panel (**21**) connected to the receptacle (**2**), the top panel (**21**) having a pair of depending end cover panels (**22**) and a depending front cover panel (**23**), a pair of cover corner flaps (**24**) for securing the end cover panels (**22**) to the front cover panel (**23**), a pair of end closures (**9**) for the carton, each end closure (**9**) comprising said end cover panel (**22**) and rear (**11**), bottom (**12**) and front (**10**) closure flaps connected respectively to the rear wall (**7**), the bottom panel (**4**) and the front wall (**8**) of the receptacle, a pair of offset scored lines (**13, 14**) for connecting the front wall closure flap (**10**) to the front wall (**8**), and a slit (**17**) cooperating with the offset scored lines (**13, 14**) so that the front wall closure flap (**10**) may pivot to accommodate the cover corner flap (**24**) within the end closure.

3. A carton blank (**1**) comprising a receptacle (**2**) and a cover (**3**), the receptacle having front (**8**) and rear walls (**7**) and a bottom panel (**4**), the cover having a top panel (**21**) having a pair of depending end cover panels (**22**) and a depending front cover panel (**23**), a pair of cover corner flaps (**24**) for securing each end cover panel (**22**) to the front cover panel (**23**), means (**9**) for closing each end of the carton blank, each of said end closing means (**9**) including an end cover panel (**22**) and a front wall closure flap (**10**), said front wall closure flap (**10**) connected to the front wall by a pair of offset scored lines (**13, 14**) and a slit (**17**) connecting the offset scored lines (**13, 14**) and extending into the front wall closure flap (**10**) so that each cover corner flap (**24**) may be accommodated in the end closure means (**9**).

4. A carton blank (**40**) comprising a receptacle (**41**) and a cover (**42**), the receptacle having front (**44**) and rear (**45**) walls and a bottom panel (**43**), the cover (**42**) having a top panel (**55**) connected to the receptacle, the top panel (**55**) having a pair of depending end cover panels (**56**) and a depending front cover panel (**57**), a pair of cover corner flaps (**60**) for securing the end cover panels (**56**) to the front cover panel (**57**), a pair of end closures (**54**) for the carton blank, each end closure (**54**) including one of the end cover panels (**56**) and rear (**53**), bottom (**52**) and front (**51**) wall closure flaps connected respectively to the rear wall (**45**), the bottom panel (**43**) and the front wall (**44**), adhesive means (**67**) for securing the end cover panels (**56**) to the cover corner flaps (**60**) and to at least one of the end closure flaps (**51, 53, 54**), the bottom wall closure flaps (**52**) being recessed to accommodate the cover corner flaps (**60**) within the recess and the bottom wall closure flaps (**52**) and the cover corner flaps (**60**) having adjacent mitered edges (**65, 66**) so that the bottom wall closure flaps (**52**) and the cover corner flaps (**60**) lie in the same plane within said end closure.

5. The carton blank as defined in claim **4** in which said adhesive means (**67**) comprises a strip of adhesive extending along the bottom panel closure flaps (**52**) and along the cover corner flaps (**60**).

6. An end closure construction (**85**) for a carton with a receptacle portion (**81**) having front (**82**) and rear (**83**) walls and a bottom panel (**84**) and with a cover portion (**91**) having top panel (**92**) with a depending front cover panel (**95**), said end closure comprising an end cover panel (**93**) and closure flaps (**86, 87, 88**) connected to the rear wall (**83**), the bottom panel (**84**) and the front wall (**82**), a cover corner flap (**99**) connected to the front cover panel (**95**) and overlying the front wall closure flap (**88**), a supplemental panel (**94**) lying between the front cover panel (**95**) and the front wall (**82**), said supplemental panel (**94**) having terminal portions (**94***b*) lying between the cover corner panel (**99**)

and the front wall closure flap (88), said front wall closure flap (88) being connected to the front wall (82) by a pair of offset scored lines (89, 90) and having a slit (100) facilitating the pivoting front wall closure flap (88) in two planes to accommodate the cover corner flap (99) and the terminal portion (94*a*) of the supplemental panel (94) within the end closure.

7. A carton comprising a receptacle (81) and a cover (82), the receptacle having front (82) and rear (83) walls and a bottom panel (84), the cover (91) having a top panel (92) connected to the receptacle, the top panel (91) having a pair of depending end cover panels (93) and a depending front cover panel (95), a pair of cover corner flaps (99) for securing the end cover panels (93) to the front cover panel (95), a supplemental panel (94) lying between the front cover panel (95) and the front wall (82), said supplemental panel (94) having terminal portions (94*b*) lying between the cover corner panel (99) and the front wall closure flap (88), a pair of end closures (85) for the carton, each end closure comprising said end cover panel (93) and rear (86), bottom (87) and front (88) closure flaps connected respectively to the rear wall (83), the bottom panel (84) and the front wall (82) of the receptacle, a pair of offset scored lines (89, 90) for connecting the front wall closure flap (88) to the front wall (82), and a slit (100) cooperating with the offset scored lines (89, 90) so that the front wall closure flap (88) may pivot to accommodate the cover corner flaps (99) and the terminal portion (94*b*) of the supplemental panel (94) within the end closures (85).

8. A carton as defined in claim 7 which further includes an embossment (103) in the front closure flap (88) so that the embossment and the cover corner flap (99) occur in the same plane.

9. A carton as defined in claim 8 wherein the bottom closure flap (87) is recessed to expose the front wall closure flap (88) and wherein the embossment (103) has an edge (103*a*) which follows the contour of at least a portion of said embossment.

10. The end closure construction of claim 1 which further includes a strip of adhesive (32) extending along the bottom closure flap (12) and the cover corner flap (24).

11. The carton as defined in claim 2 which further includes a strip of adhesive (32) extending along each bottom closure flap (12) and each cover corner flap (24).

12. The carton as defined in claim 3 which further includes a strip of adhesive (32) extending along each bottom closure flap (12) and each cover corner flap (24).

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DAVIS T. MOORHEAD, *Primary Examiner.*