Nov. 17, 1964 R. J. HENNESSEY 3,157,344

COMPARTMENTED CARTON

Filed Aug. 31, 1961 4 Sheets-Sheet 1

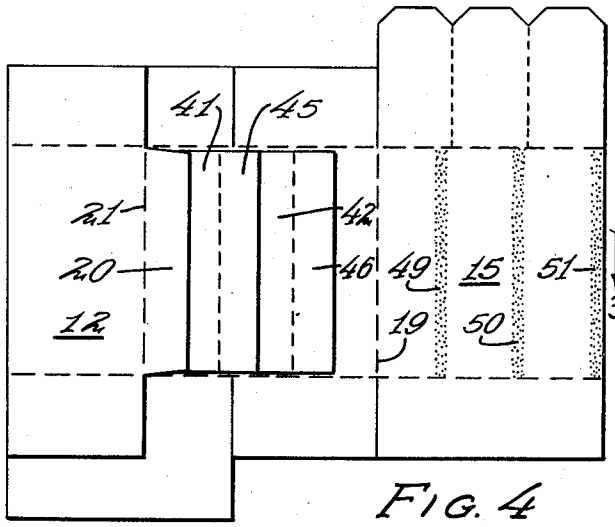


FIG. 4

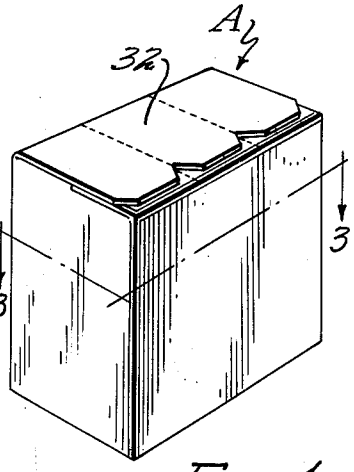


FIG. 1

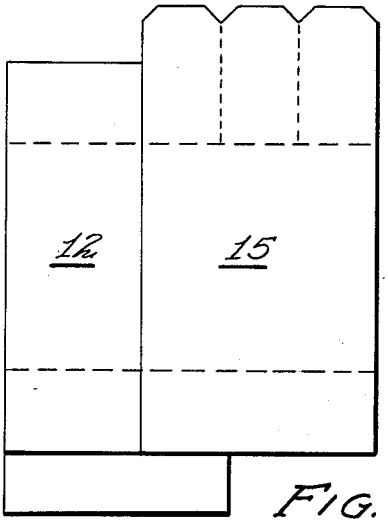


FIG. 5

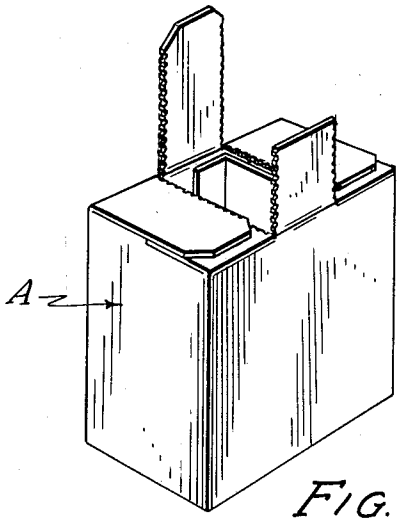


FIG. 2

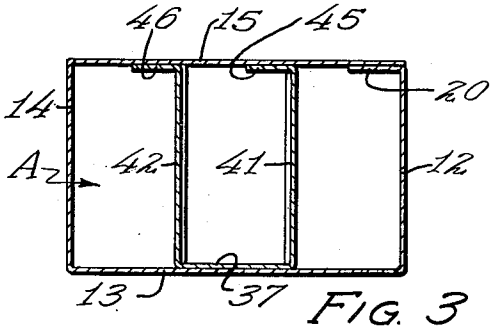


FIG. 3

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COMPARTMENTED CARTON

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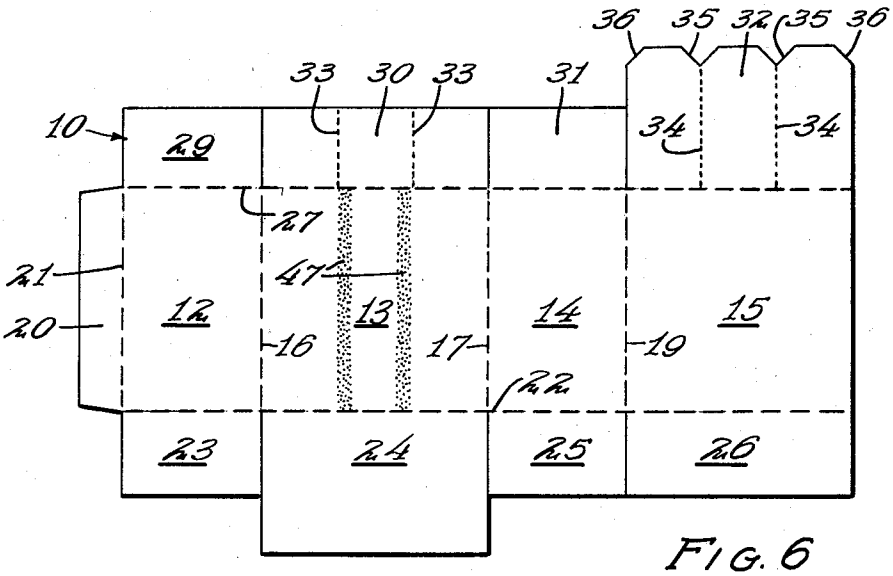


FIG. 6

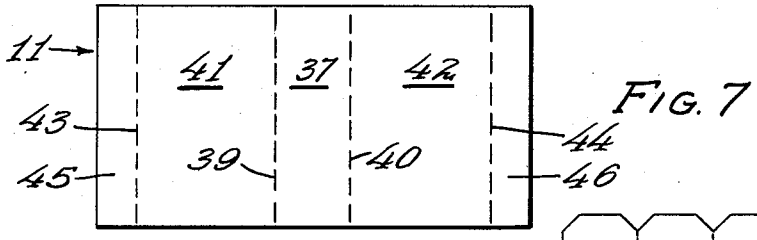


FIG. 7

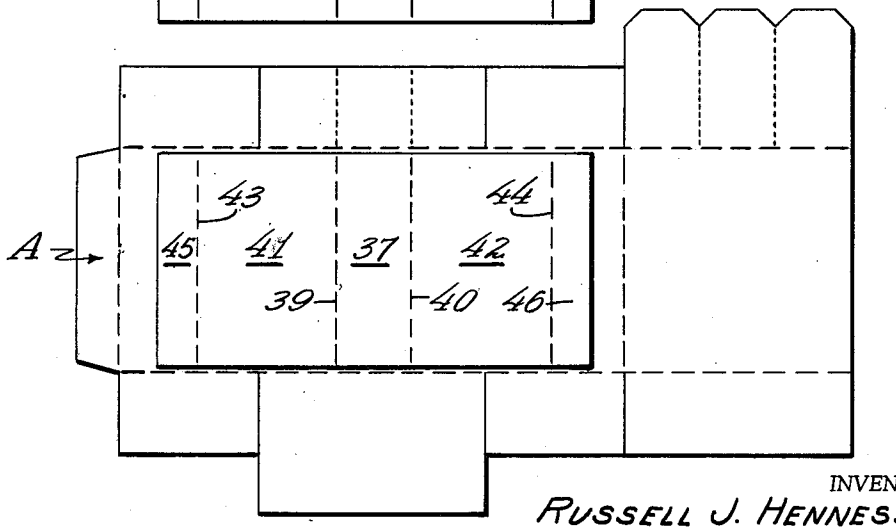


FIG. 8

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COMPARTMENTED CARTON

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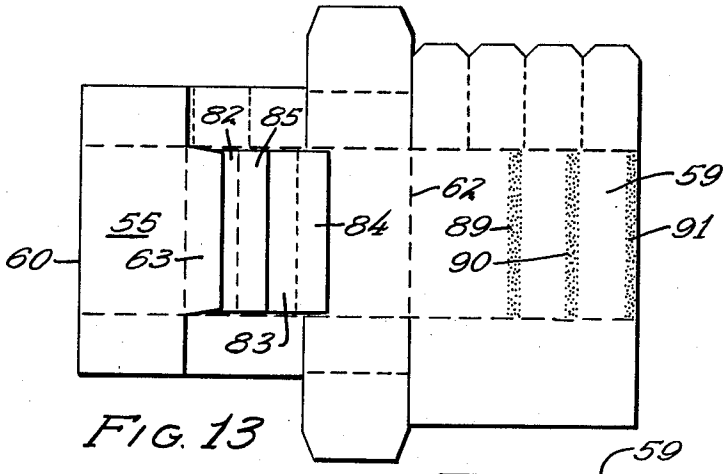


FIG. 13

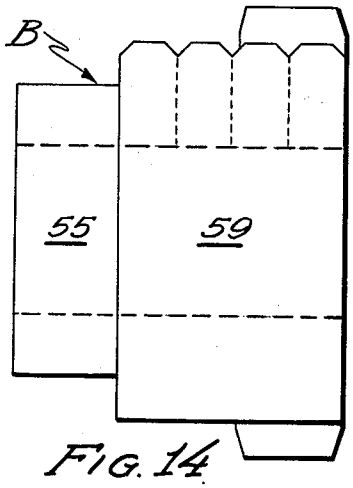


FIG. 14

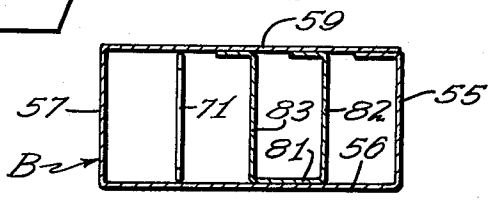


FIG. 10

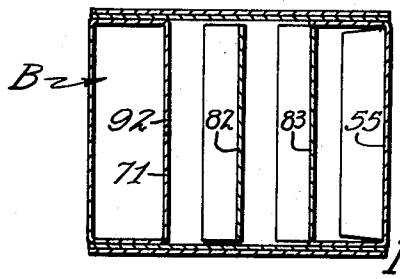


FIG. 11

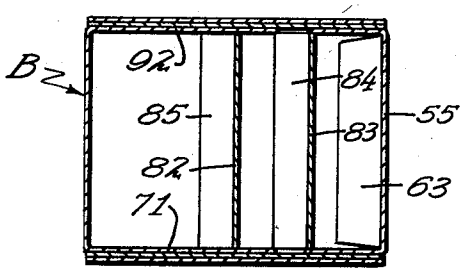


FIG. 12

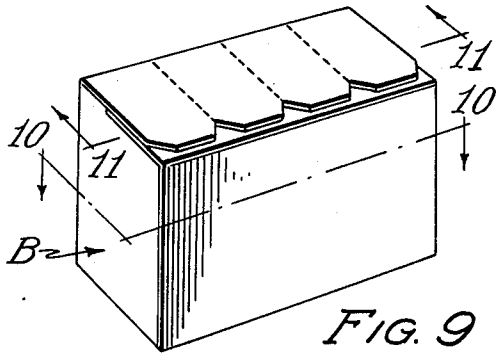


FIG. 9

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COMPARTMENTED CARTON

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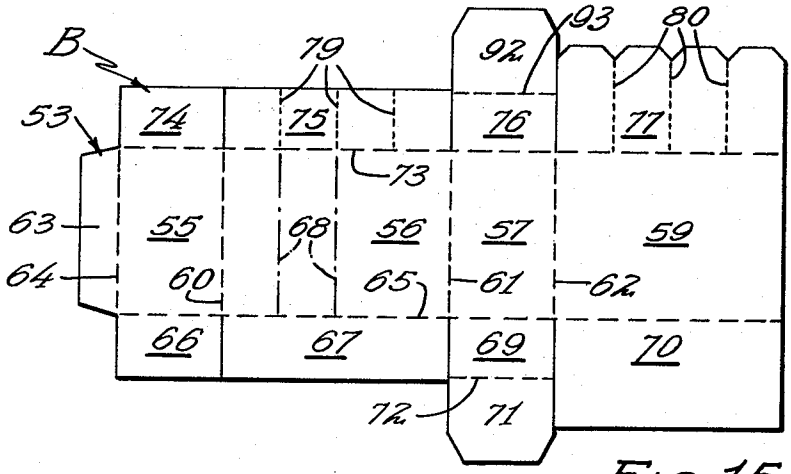


FIG. 15

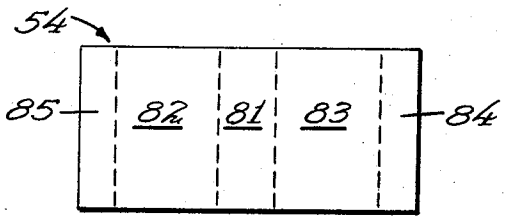


FIG. 16

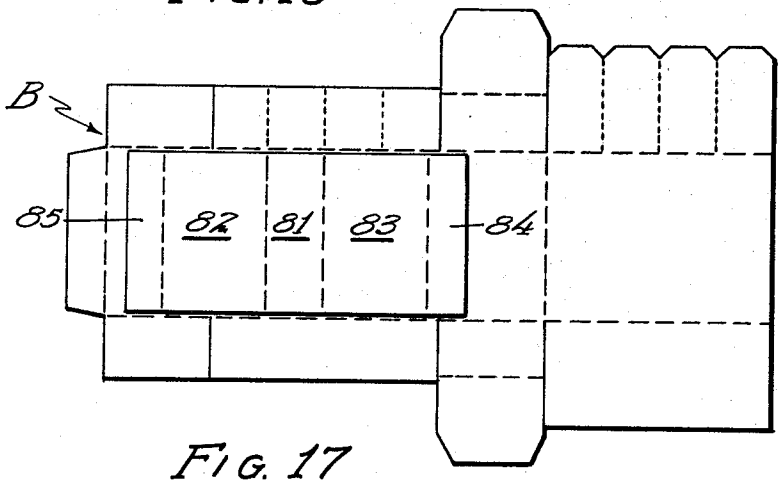


FIG. 17

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United States Patent Office 3,157,344 Patented Nov. 17, 1964

3,157,344

COMPARTMENTED CARTON

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Filed Aug. 31, 1961, Ser. No. 135,201
4 Claims. (Cl. 229—27)

This invention relates to an improvement in compartmented cartons and deals particularly with a simple carton construction which may include three or four compartments of the same size or of different sizes.

It has been common practice for producers of various products to package a plurality of the items in a single carton so that the customer will purchase more than a single item. For instance, certain manufacturers of soap bars have packaged individual bars of relatively high grade soap in paperboard cartons in single units. It has now been proposed that cartons be provided to package three or four bars of soap rather than a single bar. Such a procedure not only reduces the cost of packaging, but also tends to persuade the customer to buy the product in greater volume.

While simple cartons having two compartments are readily produced, cartons having three or four compartments are considerably more difficult to make and are considerably more complicated. In cases where three compartments, for example, are to be produced, the resulting structure is very difficult to glue so that the compartments may have rigid walls. It is an object of the present invention to provide a simple carton which may be produced in volume and which may be folded and glued to produce a carton having three compartments.

A feature of the present invention resides in the provision of a carton comprising a paperboard blank designed to form the outer walls of the carton and to attach to one of the walls of the carton a partition forming blank which is the proper size to form the necessary partitions. When this partition forming blank is adhered to the outer wall forming blank, the composite blank may be folded and glued on a regular straight line gluing machine at high speed with virtually no difficulty.

A further feature of the present invention resides in the provision of a compartmented carton having closure flaps which are so arranged that any of the compartments may be individually opened and the contents thereof removed.

An added feature of the present invention resides in the provision of a carton which may, if desired, be formed into a carton having four compartments by employing tuck flaps on certain of the closure flaps which extend into the carton from opposite ends thereof to form the third partition wall.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification:

FIGURE 1 is a perspective view of the closed carton.

FIGURE 2 is a view similar to FIGURE 1 showing one of the compartments after it has been opened.

FIGURE 3 is a horizontal sectional view through the carton, the position of the section being indicated by the line 3—3 of FIGURE 1.

FIGURE 4 is a diagrammatic view of the composite blank after the first folding operation.

FIGURE 5 is a diagrammatic view of the blank after the second or final folding operation.

FIGURE 6 is a diagrammatic view of the blank of which the outer portion of the carton is formed.

FIGURE 7 is a diagrammatic view of the blank from which the partition forming portion of the carton is formed.

FIGURE 8 is a diagrammatic view of the composite blank after the two blanks have been combined.

FIGURE 9 is a perspective view of a modified form of carton.

FIGURE 10 is a horizontal sectional view through the carton shown in FIGURE 9, the position of the section being indicated by the line 10—10 of FIGURE 9.

FIGURE 11 is a vertical section through the carton shown in FIGURE 9, the position of the section being indicated by the line 11—11 of FIGURE 9.

FIGURE 12 is a view similar to FIGURE 10 but showing certain of the flaps folded in a different manner.

FIGURE 13 is a diagrammatic view of the blank after the first folding operation.

FIGURE 14 is a diagrammatic view of the blank after the final folding operation.

FIGURE 15 is a diagrammatic view of the blank from which the outer portion of the carton of FIGURE 9 is formed.

FIGURE 16 is a diagrammatic view of the blank forming the partition structure of the carton illustrated in FIGURE 9.

FIGURE 17 is a diagrammatic view of the composite blank used for forming the carton of FIGURE 9.

The carton A illustrated in FIGURES 1 through 8 of the drawings includes an outer blank **10** best illustrated in FIGURE 6 of the drawings, the partition forming blank **11** illustrated in FIGURE 7 of the drawings. The blank **10** includes an end wall **12**, a side wall **13**, an end wall **14**, and a side wall **15** which are foldably connected along parallel fold lines **16**, **17**, and **19**. A glue flap **20** is hingedly connected to one wall at the end of the blank, such as the blank **12** by a fold line **21**. The glue flap **20** is secured in overlapping relation to the side wall **15**.

The various wall panels are connected along a fold line **22** to bottom closing flaps. The flaps **23**, **24**, **25**, and **26** are connected to the wall panels **12**, **13**, **14**, and **15** respectively. The wall panels are connected along an upper fold line **27** to top closing flaps. Flaps **29**, **30**, **31** and **32** are connected to the upper edges of the wall panels **12**, **13**, **14**, and **15**, respectively. In the particular arrangement illustrated, the carton is to be divided into three compartments of equal size. In order to provide access to the individual cartons, weakened lines of separation **33** extend transversely across the closing flap **30** at right angles to the fold line **27**, these weakened lines dividing the flap into three equal sections. The flap **32** is also provided with a pair of spaced parallel weakened lines of separation **34** which are at right angles to the fold line **27** and extend transversely across the flap **32**. The perforated lines **34** divide the flap **32** into three equal sections. In the particular arrangement illustrated, the free edge of the flap **32** is notched as indicated at **35**, the notches **35** having an apex on the perforated lines **34**. The corners **36** of the flap **32** are also cut off diagonally so that the individual sections of the flap may be more readily grasped and removed. In the interests of economy, the flap **30** does not extend completely across the top of the carton when closed although obviously this is a matter of choice.

The blank **11** illustrated in FIGURE 7 of the drawings includes a central panel **37** which is foldably connected along parallel fold lines **39** and **40** to partition panels **41** and **42**, respectively. As the compartments are to be of equal size, the panel **37** is of a length substantially equal to one-third of the width of the panel **13**. Obviously, the partition panels **41** and **42** are of a width equal generally to the end wall panels **12** and **14**. The partition panels **41** and **42** are connected along parallel fold lines **43** and **44** to glue flaps **45** and **46** respectively.

In assembling the composite blank, the partition forming blank **11**, the middle section of the side wall panel **13** is provided with areas of adhesive **47** and the panel **37** of the blank **11** is secured to the middle one-third portion of the panel **13**. This may be readily accomplished on what is commercially known as a window machine which is used to adhere a transparent window to a selected portion of the blank. When adhered in place, the composite blank appears as indicated in FIGURE 8 of the drawings with the partition panel **41** and glue flap **45** overlying one side of the panel **13** and a portion of the end panel **12**, and with the partition panel **42** and glue flap **46** overlying the remaining portion of the wall panel **13** and a portion of the end panel **14**. In the form illustrated in FIGURE 8, the blank is in readiness to be glued into tubular form.

In folding the carton into tubular form, the wall panel **12** of the outer blank **10** is folded along the fold line **16** to overlie a portion of the side wall panel **13**. In view of the fact that substantially more than one-half of the partition panel **41** and glue flap **45** are overlying the panel **12**, the hinging of the end wall **12** also acts to hinge the panel **41** and glue flap **45** about the fold line **39**. When this first fold is complete, the blank appears as indicated in FIGURE 4 of the drawings.

At this stage of the operation, a strip of adhesive **49** is applied to the inner surface of the side wall **15**, this strip of adhesive being in the first one-third of the area of the panel **15** from the fold line **15**. This area of adhesive is designed to adhere the side wall **15** to the glue flap **46** on one partition wall **42**. At the same time, a second area of adhesive **50** is applied to the inner surface of the side wall panel **15**, this area **50** being positioned in the center one-third of the panel **15** and being arranged to adhere the panel **15** to the glue flap **45** on the second partition panel **41**.

A third area of adhesive **51** is provided on the outer one-third of the side wall panel **15**, the area **51** being arranged to adhere the side wall panel **15** to the glue flap **20** hingedly connected to the end wall of the outer carton blank **10**. While the areas of adhesive are described as being applied to the side wall panel **15**, it is obvious they can similarly be applied to the glue flaps **20**, **45**, and **46**.

The outer carton blank is next folded along the fold line **19** into the position indicated in FIGURE 5 of the drawings. Pressure is applied, and the side wall **15** is securely anchored to the flaps **45** and **46** of the partition walls and the glue flap **20** of the outer blank.

When the carton A is opened up into rectangular form, the partitions **41** and **42** extend at right angles to the side walls **13** and **15** of the carton and parallel to the end walls **12** and **14** thereof, as is best illustrated in FIGURE 3 of the drawings. When opened, the carton is provided with three compartments which in the particular form illustrated are of equal size. Obviously, however, the partitions may vary in size if the goods which are to be contained are not uniform in size.

The lower closing flaps of the carton are closed and the carton is filled with the product. The remaining closing flaps may then be secured in closed position in the usual manner, the flaps **29** and **31** being folded into a common plane, and in the flaps **30** and **32** being folded to overlie the first folded flaps. When closed, the carton appears as indicated in FIGURE 1 of the drawings.

When it is desired to remove a portion of the contents, any of the sections of the panel **32** may be manually engaged and pulled upwardly. Preferably, the free edge of the closing flap **32** is not adhered to the underlying panel so that any of the individual sections of the flap **32** may be pulled upwardly, the paper bord ripping along one or both of the perforated lines. FIGURE 2 of the drawings shows the carton with the center compartment open for removal of the contents.

The carton B is very similar in form to the carton A, but has been disclosed to show the manner in which the size of the compartments may be varied, or the carton

may be divided into four compartments. The carton B is formed of an outer carton blank **53** and a partition forming blank **54**. The blank **53** includes an end wall **55**, a side wall **56**, an end wall **57**, and a side wall **59**, these walls being connected along parallel fold lines **60**, **61**, and **62**. A glue flap **63** is foldably connected to the end panel **55** along a fold line **64**, and this glue flap is later secured in overlapping relation to the side wall panel **59**.

The various wall panels are foldably connected along a fold line **65** to bottom closing flaps. The flaps **66**, **67**, **69**, and **70** are foldably connected to the wals **55**, **56**, **57**, and **59** respectively. A closing flap extension **71** is foldably connected to the closing flaps **69** along a fold line **72** which is parallel to the fold line **65** and is spaced therefrom a distance, in the form illustrated, of one-fourth the width of the side walls **56** and **59**. The purpose of this arrangement will be later described.

The upper edges of the side walls are connected along a fold line **73** to top flaps, the flaps **74**, **75**, **76** and **77** being hinged to the side walls **55**, **56**, **57** and **59** respectively. Weakened lines of separation **79** extend across the flaps **75** at right angles to the fold line **73**, these perforated lines, in the construction illustrated, dividing the flap **75** into four equal sections. In a similar way, weakened lines of separation **80** extend across the top flap **77** at right angles to the fold line **73**, these weakened lines dividing the top flap **77** into four equal sections. The free edge of the flap **77** is notched as in the previous constructions to facilitate grasping the ends of the four sections defined by the weakened lines.

The partition forming blank **54** is identical to the blank **11** previously described, including an anchoring panel **81**, partition panels **82** and **83** on opposite sides of the anchoring panel **81**, and glue flaps **84** and **85** are hingedly connected to the partition flaps **83** and **82**. The hinge lines connecting the various panels are parallel. In the arrangement illustrated, the anchoring panel **81** is of substantially equal width to one-fourth of the width of the side walls **56** and **59**, while the partition flaps **82** and **83** are substantially equal to the width of the end walls **55** and **57**.

The anchoring panel **81** of the blank **54** is adhered to an area of the side wall **56** which is defined by the broken lines **68** in FIGURE 15, and which is an area of approximately one-quarter of the panel **56** and spaced from the fold lines **60** a quarter of the distance across the panel. When the two blanks have been combined they appear as is best indicated in FIGURE 17 of the drawings.

To complete the construction, the end wall panel **55** is folded about the fold line **60**, this operation acting, in the manner previously described, to fold the partition panel **82** and glue flap **85** to overlie the adjoining portion of the blank **54**. When in this position, the blank appears as indicated in FIGURE 13. Areas of adhesive **89**, **90**, and **91** are applied to the inner surface of the side wall panel **59**, these areas being so positioned as to engage the glue flap **84**, the glue flap **85**, and the glue flap **63**, respectively. When the panel **59** is folded along the fold line **62** to overlie the remainder of the blank, the blank appears as is indicated in FIGURE 14 of the drawings.

As has been described, the bottom closing flap **69** is provided with an extension **71**. The top closing flap **76** is likewise provided with a flap extension **92** which is foldably connected thereto along a fold line **93** which is spaced from the fold line **73** a distance equal to one-fourth the width of the side wall panels **56** and **59**.

When the carton is folded into rectangular form as indicated in FIGURE 10 of the drawings, the partition panels **82** and **83** extend across the carton, these partition panels dividing the carton across the center and across the blank midway between the center and the end wall **55**. If a fourth partition is desired, this is formed by bending the closing flap extensions **71** and **92** upwardly and downwardly respectively in a common plane, the extensions thus dividing the area within the carton into

four equal sections. If a large section and two smaller sections are desired, the glue flap extensions **71** and **92** may either be eliminated or may remain in the plane of the closing flaps **69** and **76**, respectively.

In accordance with the patent statutes, I have described the principles of construction and operation of my improvement in "Compartmented Cartons," and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A foldable partitioned rectangular carton including alternate side and end walls hingedly connected along parallel fold lines, closing flaps hingedly connected to the upper and lower ends of said side and end walls, a separate auxiliary web having an intermediate panel secured to one side wall at some area parallel to the end edges of the side wall and intermediate the end walls to overlie the center portion of said one side wall, partition panels foldably connected to opposite edges of said intermediate panel along parallel fold lines, said partition panels being substantially equal in width to said end walls and greater in width than the distance between one of said edges and the nearest of said fold lines, anchoring flaps hinged to said partition panels along fold lines substantially parallel to the previously described fold lines, said anchoring flaps being secured in face contact with the other side wall and both said anchoring flaps extending from said partition panels toward the same one of said end walls, and means securing said side and end walls in tubular relation, said closing flaps secured to said side walls including transverse weakened lines of separation which terminate adjacent to the adjacent ends of the partition panels when the carton is closed.

2. A foldable partitioned rectangular carton including alternate side and end walls hingedly connected along parallel fold lines, closing flaps hingedly connected to the upper and lower ends of said side and end walls, a separate auxiliary web having an intermediate panel secured to one side wall at some point intermediate the end walls, partition panels foldably connected to opposite edges of said intermediate panel along parallel fold lines, said partition panels being substantially equal in width to said end walls, anchoring flaps hinged to said partition panels along fold lines substantially parallel to the previously described fold lines, said anchoring flaps being secured in face contact with the other side wall and both said anchoring flaps extending from their partition walls toward the same one of said end walls, and means securing said side and end walls in tubular relation, said intermediate panel being secured to said one side wall on an area nearer one end wall than to the other, the width of said partition panels being greater than the distance from the said one end wall to the nearest edge of said intermediate panel, the closing flaps hinged to said other end wall having partition flap extensions foldably connected to the free ends thereof and foldable into parallel relation to said partition panels when said wall panels are rectangularly arranged.

3. A compound flat blank for use in forming a partitioned carton, the blank including a body sheet creased along parallel fold lines to include in series, a first end wall, a first side wall, a second end wall, and a second side wall, a glue flap hinged to a wall at one end of said series, a partition forming sheet including in series a first anchoring flap, a first partition panel, an intermediate panel, a second partition panel, and a second anchoring flap, said anchoring flaps and panels being connected along parallel fold lines and said partition panels being substantially equal in width to said end walls, means securing said partition forming sheet in face contact to said body sheet with said intermediate panel secured to said first side wall with its edges parallel to, and spaced from, the edges of said first side wall, the partition panels and anchoring flaps being free of attachment to said body sheet, and said first anchoring flap and a portion of said first partition panel overlying said first end wall.

4. A compound partially folded blank for use in forming a partitioned carton, the blank including a body sheet creased along parallel fold lines to include, in series, a first end wall, a first side wall, a second end wall, and a second side wall, a glue flap hinged to a wall at one end of said series, a partition forming sheet including in series a first anchoring flap, a first partition panel, an intermediate panel, a second partition panel, and a second anchoring flap, said anchoring flaps and panels being connected along parallel fold lines and said partition panels being substantially equal in width to said end walls, means securing said intermediate panel in face contact with said first side wall with its hinged edges parallel to, and spaced inwardly from, the edges of said first side wall, said first anchoring flap and first partition panel being folded to overlie the intermediate panel and a portion of said second partition panel, and said first end wall being folded to overlie a portion of said first partition wall, said anchoring flaps both being exposed, whereby upon the folding of the second side wall over said second end wall, said second side wall may be adhered to both said anchoring flaps and said glue flap may connect said first end wall to said second side wall.

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