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2,881,970

CARTON

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2 Sheets-Sheet 1

Fig. 1

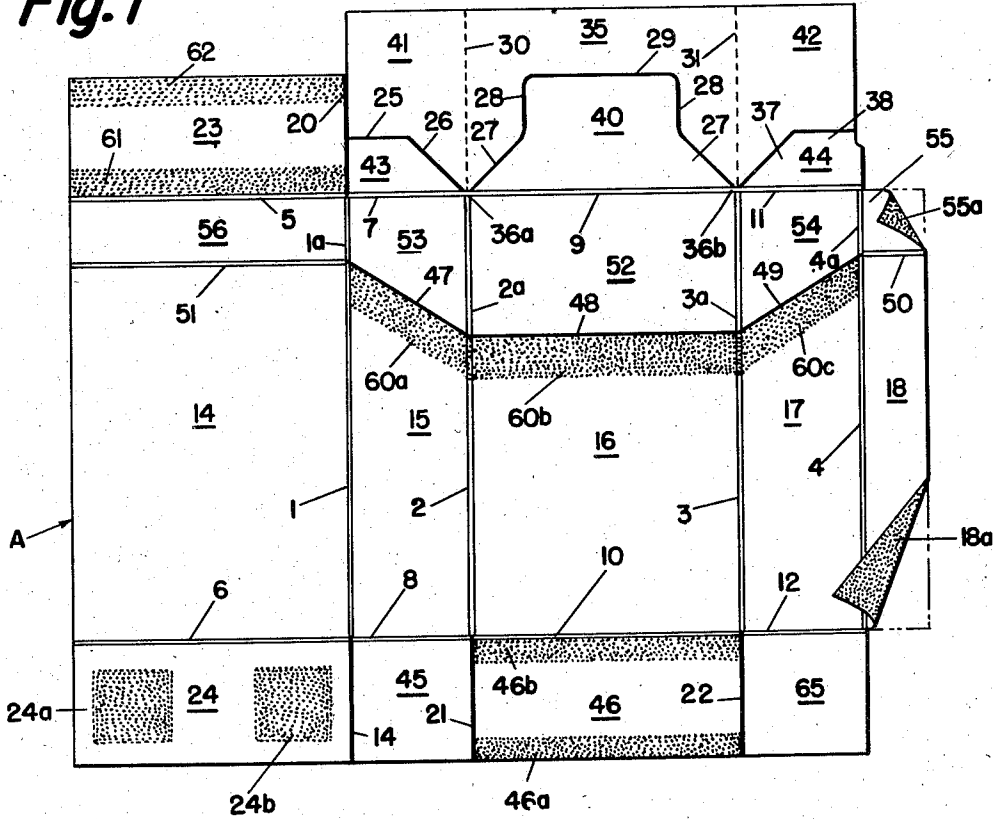
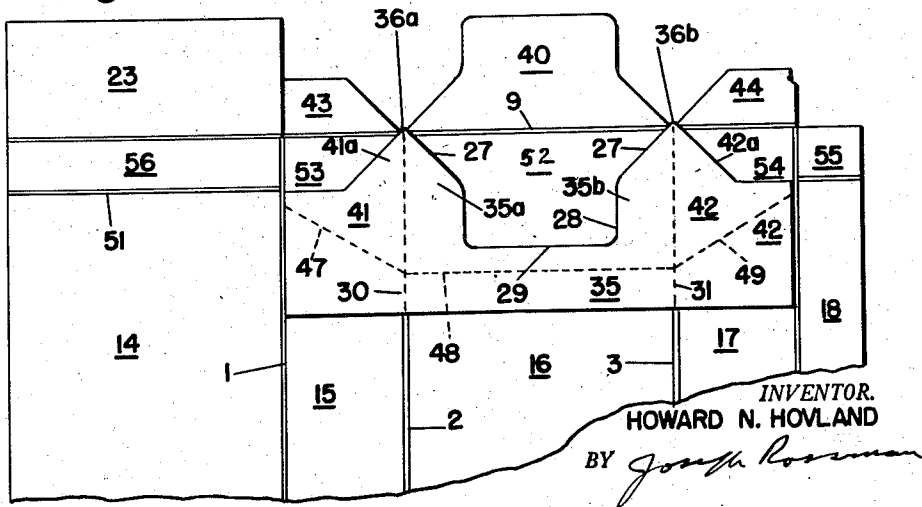


Fig. 2



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1

2,881,970

CARTON

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5 Claims. (Cl. 229—44)

This invention relates to a tamperproof, reclosable carton which may be made from a single blank. More specifically, the invention relates to a carton for packaging cigarettes and other articles having a reclosable cover or lid.

Further details and advantages of the invention will be apparent from the following specification and appended drawings, wherein:

Figure 1 is a plan view of a single blank suitably cut and scored to form a carton having a reclosable lid,

Figure 2 is a fragmental plan view of the blank shown in Figure 1 folded upon itself and having certain superposed portions adhered together as a step in making a carton from the blank,

Figure 3 is a perspective view of the folded blank shown in Figure 2 partially set up,

Figure 4 is a perspective view of the partially set-up carton at a later stage,

Figure 5 is a perspective view of the completed carton, and

Figure 6 is a fragmental perspective view showing the carton opened and the lid folded back.

Referring to the drawings, the carton is preferably made of a single foldable blank A, shown in Figure 1, such as of cardboard, from which a receptacle portion B and a hinged box-like lid C are formed with the use of minimum amount of material. The completed carton is shown in Figure 5 wherein the receptacle portion is indicated generally by letter B and the hinged lid by letter C. The blank A is scored along spaced parallel lines 1, 2, 3 and 4 to form a plurality of hinged walls to form the receptacle portion B. Front wall 16 is formed by score lines 2 and 3 and transverse upper cut line 48 and lower score line 10. Rear wall 14 is formed by score line 1 and transverse score lines 6 and 51. Side wall 15 is formed by score lines 1 and 2, transverse score line 8 and diagonal cut line 47. Side wall 17 is formed by score lines 3 and 4, transverse score line 12 and diagonal cut line 49. Clue panel 18 is defined by score line 4. Transverse score line 50 and score line 4a define a foldable portion 55 of glue panel 18.

The front wall 16 and rear wall 14 are preferably of substantially the same width, the height of the front wall 16 being preferably less than the height of the rear wall 14 by an increment at least equal to the difference in height between rear wall 14 and the combined heights of wall 16 plus front panel 52 hereinafter described. The side walls 15 and 17 are preferably of the same width and height so as to provide a receptacle portion B which is rectangular in cross-section.

A lid-forming panel, comprised of a front panel 52 and hinged side panels 53 and 54, is hinged connected at one side to the upper portion of the glue panel 18 along score line 4a and to the upper portion of rear wall 14 along score line 1a. Inner flap 43 is formed by cut lines 20, 25 and 26 and is hinged connected along score line 7 to side lid-panel 53. Inner flap 44 is formed by cut lines 37 and 38 and is hinged connected by score

2

line 11 to side lid-panel 54. Inner lid-flap 40 is formed by a pair of spaced diagonal cut lines 27, cut lines 28 and transverse cut line 29. Flap 40 is hingedly connected along score line 9 to front lid-panel 52. Side lid-panel 53 is formed by cut line 47 and score lines 1a, 7 and 2a. Side lid-panel 54 is formed by cut line 49 and score lines 3a, 11 and 4a.

Rear lid-panel 56 is formed by spaced score lines 5 and 51 and transverse score line 1a. Panel 56 is hingedly connected along score line 51 to the upper portion of rear wall 14. Top lid-panel 23, formed by score line 5 and cut line 20, is hingedly connected to the rear lid-panel 56 along score line 5.

Rear wall 14 is provided with a bottom flap 24 hinged along score line 6 and separated from flap 45 by cut line 19. Bottom flap 45 is hingedly connected to side wall 15 along score line 8. Bottom closure flap 46 is hingedly connected to front wall 16 along score line 10 and is separated from bottom flap 45 by cut line 21 and from bottom flap 65 by cut line 22. Bottom flap 65 is hingedly connected to side wall 17 along score line 12. These bottom flaps are adapted to be folded inwardly and adhered to form the bottom of the receptacle portion B.

An inner reinforcing panel, comprised of hingedly connected panels 41, 35 and 42, is hingedly connected to the upper corner portions 36a and 36b of the front lid-panel 52. Inner reinforcing front panel 35 is formed by cut lines 27, 28 and 29 and spaced perforated score lines 30 and 31, and is hingedly connected at points 36a and 36b to the upper corner portions of the front lid-panel 52. Inner reinforcing panel 41, formed by cut lines 25 and 26 and perforated score line 30, is hingedly connected along perforated score line 30 to panel 35. Inner reinforcing score panel 42, formed by cut score lines 37 and 38 and perforated score line 31, is hingedly connected to panel 35 along perforated score line 31. It is to be noted that cut lines 26 and 27 stop short of intersecting each other at the point 36a so that a small unsevered portion is left which serves as a hinge for the reinforcing panel 35. Likewise, cut lines 27 and 37 stop short of intersecting each other so as to provide a small unsevered portion 36b which serves as a hinge for reinforcing panel 35, for a purpose to be explained later.

In forming the carton from the blank as described, a suitable adhesive is applied to the upper areas 60a, 60b and 60c, respectively, of side wall 15, front wall 16 and side wall 17 of the receptacle portion B. Reinforcing panels 41, 35 and 42 are then bodily folded over as a unit and adhered, respectively, to the upper portions of side wall 15, front wall 16 and side wall 17, as shown in Figure 2. Adhesive is applied to the reverse face 18a and 55a of glue panel 18 which is then adhered to inner marginal portion of rear wall 14, and portion 55a is adhered to the marginal portion of rear lid-panel 56, so as to form the partially formed tubular carton as shown in Figure 3. The upper end of the carton is then sealed by forming the lid portion. This is effected by folding the lid flap portions previously described, in proper relation, and suitably adhering them. This is accomplished by inwardly folding inner side flaps 43 and 44 and inner flap 40, and then folding thereover the top lid-panel 23 and adhering same to the inner flaps by means of adhesive applied to areas 61 and 62 on top lid-panel 23. The article to be packaged in the carton such as a cigarette packet D, is then placed within the carton through the bottom open end. Bottom flaps 45 and 65 are then folded inwardly and flap 24 is then folded over and adhered thereto by adhesive areas 24a and 24b. Closure flap 46 is then folded over flap 24 and adhered thereto by adhesive applied to areas 46a and 46b. The package is now completely formed and sealed, as shown in Figure

3

5, in which condition it can be distributed to the consumer.

In opening the package described, the cut edge 48 of the front lid-panel 52 is engaged by a finger and pulled upwardly with a slight force sufficient to sever the hinge connections 36a and 36b of reinforcing panel 35. The lid C can now be swung open on its hinge 51 as shown in Figure 6 to render the contents D of the package accessible. As shown in Figure 6, the corner portions 35a and 35b of the reinforcing panel will extend upwardly above the free cut edge 29 of panel 35. Likewise, portions 41a and 42a, respectively, of reinforcing side panels 41 and 42 will extend upwardly of the open end of the receptacle portion to form yieldable corner portions in conjunction, respectively, with extending portions 35b and 35a. These corner portions are adapted to resiliently oppose movement of the hinged lid portion C between carton-closed and carton-opened positions. The corner portions are sufficiently yieldable inwardly when engaged by the inner corner portions of the cover to frictionally engage and retain the cover for repeated opening and reclosing of the lid. It will be noted that the corner portions extend for a substantial distance above the hinge line 51 or the lid C and engage the front corners of the lid when closed to resist opening of the lid, the corner portions, together with the contents D of the receptacle portion B being arranged within the surfaces swept out by the leading edges of the side walls 53 and 54 of the lid during closing of the latter. The front wall 52 of the lid is so dimensioned that during closing of the lid the free edge of the front wall passes clear of the tops of the corner portions and of the front wall of the receptacle portion, while the front corners of the lid, when the latter is closed, extend downwardly below the hinge line 51 of the lid. From the construction as described, it is clear that the tops of these corner portions 35a and 35b extend above the upper edge of front wall 16 by a distance which at most is twice the difference in height between the front wall 16 and the rear wall 14. The side lid-panels 53 and 54 of the lid are also adapted to telescope over the inner reinforcing side panels 41 and 42, respectively, the cut lines 47 and 49 acting, respectively, as stop edges. Likewise front lid-wall 52 is adapted to telescope over the upper exposed portion of the inner front reinforcing panel 35, the cut line 48 acting as a stop edge, so as to limit the downward movement of the lid upon reclosing same.

It will also be noted that cut lines 28 and 29 provide a rectangular-shaped dispensing opening at top of the receptacle portion B which is suitable for pouring powder or liquids packaged in the receptacle portion, or for inserting the fingers within the receptacle to remove articles therefrom one at a time, such as cigarettes.

The present invention provides a carton construction which requires a minimum amount of cardboard stock. The carton can be readily set up, filled with the commodity to be packaged, and sealed by automatic machinery. The carton is tamperproof because it cannot be opened without first breaking the hinge connections 36a and 36b, previously described.

The specific embodiment of the invention previously described may be modified in many ways. The invention is not restricted to any specific contour or dimension. The carton may have other cross-sectional contours and dimensions. The cut lines 27, 28 and 29 may be re-arranged to provide an inner flap of different shapes. For example, it is possible to arrange cut lines 27, 28 and 29 so as to provide a triangular shaped flap 40 and thereby provide a triangular-shaped opening at the top of the receptacle portion B for use as a pour spout in event powder or liquids are packaged therein. Lines 27, 28 and 29 may also be given other contours, such as curvilinear, to provide a circular-shaped pour spout if desired.

It is to be understood that the description of the carton construction given herein is merely illustrative of the essential features of the invention and is not limited to the

4

specific dimensions or contours which may be greatly varied or modified and which variations are intended to be included within the scope of the appended claims.

I claim:

1. A tamperproof reclosable carton formed of a single flexible blank suitably cut and scored to provide a receptacle portion and a box-like lid hinged thereto and telescoped over the open top of the receptacle portion, said receptacle portion being formed of a front wall, a rear wall, a pair of spaced side walls, and a glue panel, all said walls and panel being hingedly connected, said front wall and rear wall being of substantially the same width and said front wall being of less height than said rear wall, said box-like lid formed from lid-forming panels hingedly connected to said glue panel and said rear wall at the respective upper portions thereof, said lid-forming panels being severed from the said front and side walls to provide a front lid-wall and side lid-walls, respectively, for the hinged lid, one of said side lid-walls being hingedly connected to a rear lid-panel, said rear lid-panel being hingedly connected to the rear wall of the said receptacle portion along a hinge line at the upper portion of said rear wall, a top lid-panel hingedly connected to said rear lid-panel, inner side flaps hingedly connected to the upper portions of said side lid-walls, an inner lid-flap hinged to the upper portion of the said front lid-wall, all said inner flaps being folded inwardly and adhered to the said top lid-panel to produce a box-like hinged lid, an inner reinforcing front panel hinged to at least one of said lid-walls adjacent the upper edge thereof and except for such hinge connections separated by cut lines from said inner lid-flap, said inner reinforcing panel being folded over and adhered to the inner surface of the adjacent upper portions of the receptacle walls, said inner reinforcing front panel having corner portions extending upwardly above the upper edge of the front wall of the receptacle portion at each side thereof by a distance which at most is twice the difference in height between the receptacle front and rear walls, closure flaps hingedly connected to the bottom of the receptacle walls, said closure flaps being folded over and adhered to form a bottom wall for the receptacle portion, said hinged lid being retained in sealed condition and being adapted to be hinged open upon severance of the said inner reinforcing front panel from the upper edge of said lid-walls and being reclosable and retained in frictionally retained position by engagement with the upwardly extending corner portions of said inner reinforcing panel, said corner portions being adapted to resiliently oppose movement of said lid between carton-closed and carton-opened positions.

2. A tamperproof reclosable carton formed of a single flexible blank suitably cut and scored to provide a receptacle portion and a box-like lid hinged thereto and telescoped over the open top of the receptacle portion, said receptacle portion being formed of a front wall, a rear wall, a pair of spaced side walls, and a glue panel, all said walls and panel being hingedly connected, said front wall and rear wall being of substantially the same width and said front wall being of less height than said rear wall, said box-like lid hingedly connected to said glue panel and said rear wall at the respective upper portions thereof, said lid being severed from the said front and side walls to provide a lid front wall and lid side walls respectively for the hinged lid, said lid side walls being connected to a rear lid-panel, said rear lid-panel being hingedly connected to the rear wall along a hinge line at the upper portion of said rear wall, a top lid-panel hingedly connected to said rear lid-panel, inner side flaps hingedly connected to the upper portions of said lid side walls, an inner lid-flap hinged to the upper portion of the said front wall of the lid, all said inner flaps being folded inwardly and adhered to the said top lid-panel to produce a box-like hinged lid, an inner reinforcing front panel hinged to at least one of said lid panels adjacent the upper edge thereof and except for

such hinge connections separated by cut lines from said inner lid-flap, inner reinforcing side panels hinged to each side of said inner reinforcing front panel, all said inner reinforcing panels being folded over and adhered to the inner surface of the adjacent upper portions of the front wall and side walls respectively of the receptacle portion, said inner reinforcing front panel having corner portions extending upwardly above the upper edge of the front wall of the receptacle portion at each side thereof by a distance which at most is twice the difference in height between the receptacle front and rear walls, closure flaps hingedly connected to the bottom of the receptacle walls, said closure flaps being folded over and adhered to form a bottom wall for the receptacle portion, said hinged lid being retained in sealed condition and being adapted to be hinged open upon severance of the said inner reinforcing front panel from the upper edge of said lid-walls and being reclosable and retained in frictionally retained position by engagement with the upwardly extending corner portions of said inner reinforcing panel, said corner portions extending for a substantial distance above the hinge line of the lid and engaging the front corners of the lid when closed to resist opening of the lid, said corner portions, together with the contents of the receptacle portion being arranged within surfaces swept out by the leading edges of the side walls of the lid during closing of the latter, the front wall of the lid being so dimensioned that during closing of the lid the free edge of such front wall passes clear of the tops of said corner portions and of the front wall of the receptacle portion, while the front corners of the lid, when the latter is closed, extend downwardly below the hinge line of the lid.

3. A tamperproof reclosable carton formed of a single flexible blank suitably cut and scored to provide a receptacle portion and a box-like lid hinged thereto and telescoped over the open top of the receptacle portion, said receptacle portion being formed of a front wall, a rear wall, a pair of spaced side walls, and a glue panel, all said walls and panel being hingedly connected, said front wall and rear wall being of substantially the same width and said front wall being of less height than said rear wall, said box-like lid hingedly connected to said glue panel and said rear wall at the respective upper portions thereof, said lid being severed from the said front and side walls to provide a front lid-wall and side lid-walls respectively for the hinged lid, one of said side lid-walls being hingedly connected to a rear lid-panel, said rear lid-panel being hingedly connected to the rear wall of the said receptacle portion along a hinge line at the upper portion of said rear wall, a top lid-panel hingedly connected to said rear lid-panel, inner side flaps hingedly connected to the upper portions of said side lid-walls, an inner lid-flap hinged to the upper portion of the front wall of the lid, all said inner flaps being folded inwardly and adhered to the said top lid-panel to produce the box-like hinged lid, an inner reinforcing front panel hinged to upper corner portions of said front lid-wall, said inner panel being separated by cut lines from said inner lid-flap except for the hinged connections at the upper corner portions of the said front lid-wall, inner reinforcing side panels hinged to each side of said inner reinforcing front panel, all said inner reinforcing panels being folded over and adhered to the inner surface of the adjacent upper portions of the front wall and side walls respectively of the receptacle portion, said inner

reinforcing front panel having corner portions extending upwardly above the upper edge of the front wall of the receptacle portion at each side thereof by a distance which at most is twice the difference in height between the receptacle front and rear walls, the free edges of said inner reinforcing panels being cut to provide a dispensing opening at the open end of the receptacle portion, closure flaps hingedly connected to the bottom of the receptacle walls, said closure flaps being folded over and adhered to form a bottom wall for the receptacle portion, said hinged lid being retained in sealed condition and being adapted to be hinged open upon severance of the said inner reinforcing front panel from the upper corner portions of the front lid-wall and being reclosable and retained in frictionally retained position by engagement with the upwardly extending corner portions of said inner reinforcing panel.

4. A carton blank comprising a series of four walls hingedly connected together in alternate pairs, one of said pairs comprising front and rear walls and the other pair comprising side walls, a glue panel connected to one wall at one end of the series, bottom closure flaps connected to the bottom edges of the walls, and top closure flaps connected to the top edges of the walls, a fold line transversely of the rear wall and spaced substantially below the top edge thereof, a cut line transversely of the front wall and spaced below the top edge thereof a distance at least twice that by which said fold line is spaced below the top edge of the rear wall, cut lines transversely of the side walls, the ends of the side wall cut lines adjacent the front wall in carton-erected condition meeting the respective ends of the front wall cut line and the ends of the side wall cut lines adjacent the rear wall in carton-erected condition meeting the respective ends of the rear wall fold line, and an irregular cut line located within a top flap connected to the front wall and connecting two points on the hinge connection between the front wall and said flap, each of said points being closely adjacent to but spaced only slightly from a different one of the side edges of the front wall, the top flap connected to the front wall being of length greater than the distance by which the cut line in said front wall is spaced below the top edge thereof.

5. A carton blank according to claim 4, further characterized by having a cut line in each of top flaps connected to said side walls, said cut lines extending laterally across said flaps from a point on the hinge connection between said flaps and the respective side walls, said points being immediately adjacent the side wall side edges which in carton-erected condition are immediately adjacent the side edges of the front wall.

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