Jan. 2, 1968 K. T. BUTTERY 3,361,328

SQUARE END CARTON STRUCTURE

Filed July 13, 1967 2 Sheets-Sheet 1

Fig. 1

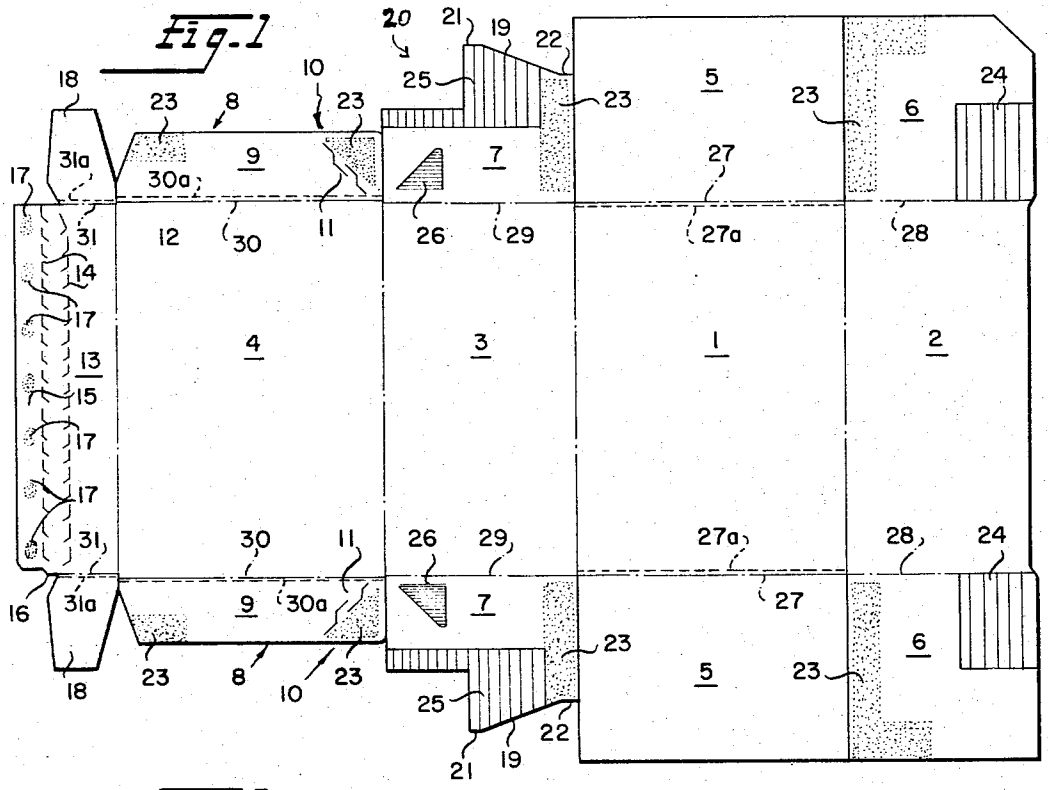


Fig. 2

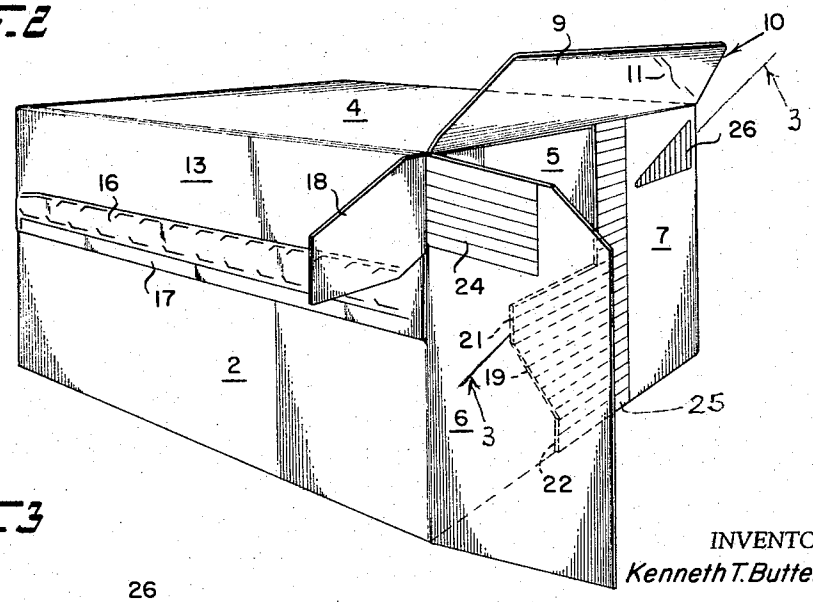
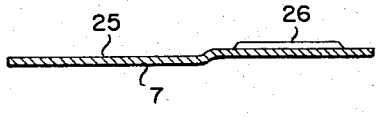


Fig. 3



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SQUARE END CARTON STRUCTURE

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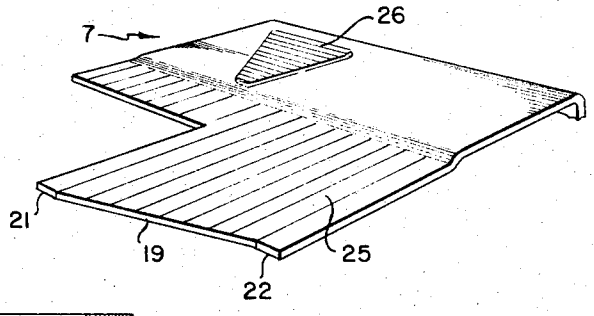
Fig. 4



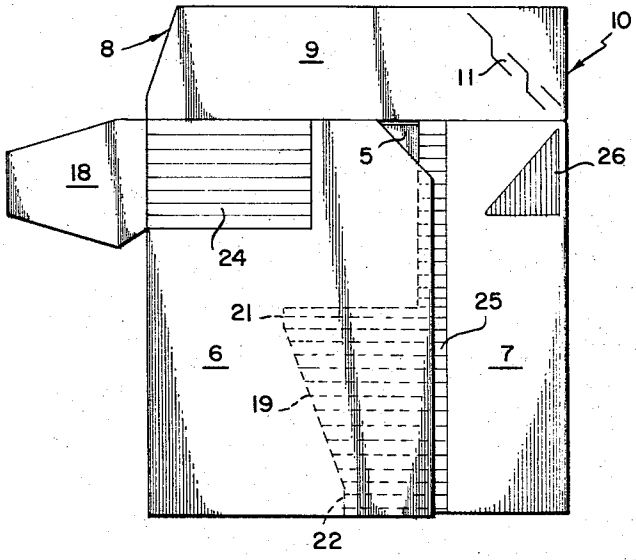
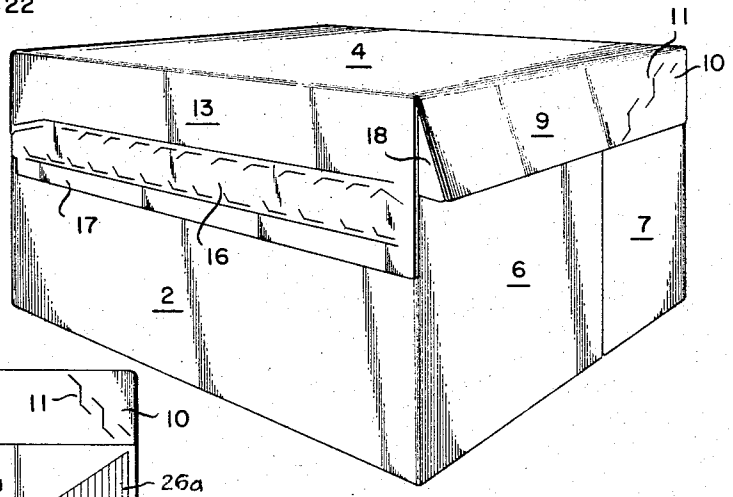


Fig. 5

Fig. 6



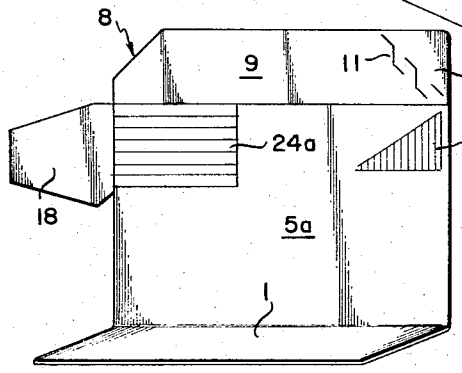


Fig. 7

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SQUARE END CARTON STRUCTURE

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20 Claims. (Cl. 229—37)

ABSTRACT OF THE DISCLOSURE

Novel carton having squared ends to facilitate adequate sealing involving overlapping end flaps with appropriate debossments and embossment on end flaps in such a manner that a square end of the carton is presented for sealing despite the fact that there are overlapping flaps of different lengths and widths presenting an otherwise uneven surface for end sealing of the carton. Novel blanks adapted to be erected into the said cartons. Additionally, the said carton blanks and cartons having a revised and staggered alignment of scores between panels and their end flaps to further facilitate end squaring of the carton, ensure adequate sealing and obviate leakage thereof.

Background of the invention

Cartons, having a so-called "flip top" cover hingedly connected to the top edge of the rear wall, are now firmly established in the trade. Such cartons are ordinarily erected with the cover in sealed condition and are readily opened by means of a tear strip or adhesive panel. They are particularly popular as containers for food items such as ice cream and the like. Once the tear strip is removed, the cover may be opened for access to some or all of the contents, and may be reclosed for further storage until the contents have been completely consumed. Cartons of this type have been available in the prior art and are satisfactory in use. However, it has been exceedingly difficult to seal the ends of such cartons and "leakers" have continuously presented problems to both manufacturers and distributors, to say nothing of the ultimate consumers of the product contained in such cartons.

"Leakers" are, of course, undesirable, for reasons not only of appearance but also of sanitation and health. Numerous attempts have been made to correct the situation and eliminate such "leakers," as by changing the alignment of scores between carton panels and end flaps, by changing the arrangement of carton panels and flaps, by underfilling cartons, and by various other approaches, without any noticeable success. The fact is that the best cartons on the market today, of the type here involved, still have an undesirably high percentage of "leakers," especially when filled with ice cream, parfait, and particularly "ice" type of dessert materials, since these are more readily subject to melting and flow.

The problem of leakage arises because of the plurality of flaps at the ends of such cartons, which are of various dimensions and in various conditions of overlap. Thus, at one position at the end of the carton three flaps are overlapped, at another position at the carton end four flaps are overlapped, and at still a different position at the carton end a different three flaps are overlapped. At one point the bottom end flap and the two wall end flaps overlap; at another point the bottom end flap, the front wall end flap, the front panel end flap, and the top panel end flap overlap; and at yet a different point the bottom end flap, the rear wall end flap, and the top panel end flap are in overlapping position. In the sealing of such cartons having an uneven layering of their end panels on standard carton sealing equipment, much difficulty has been experienced, as with incomplete seals, the aforementioned leakers, and so on. Attempts to remedy the situation have therefore been made by adjusting the scores between the bottom panel and its end flaps by offsetting the scores inwardly with respect to the scores between the front and rear walls and their respective end flaps. Also, scores between the top panel and its end flaps have been offset outwardly with respect to the scores between the rear wall and its end flaps. In addition, scores between the front panel and its end flaps have also been offset outwardly a certain extent when considered with regard to the scores between the rear wall and its end flaps. To date, all attempts to solve this dilemna have met only with confusion, failure, and at very best only partial success, and certain segments of the market are today trending away from the desirable carton structures previously employed just because of the problems of the varying dimensions and thicknesses of the flaps at the ends of the carton and the impossibility of squaring these up on standard carton sealing equipment to prevent inadequate seals and leakers. It is clear that a solution to this problem is long overdue.

Summary of the invention

It is accordingly an object of the present invention to provide a carton having a novel square-end structure which is not subject to any of the aforementioned objections and difficulties. It is a further object to provide such a carton wherein the end flaps are suitably debossed and embossed to present a more nearly squared-up carton end for sealing purposes. Still a further object of the invention is to provide such a carton wherein the scores between major panels and end flaps are in substantial alignment with the exception of the scores between the top panel and its end flaps, which are offset outwardly with respect to the scores between the carton rear wall and its end flaps. An additional object of the invention is the provision of integral blanks adapted and suitable for erection into the cartons of the invention. The accomplishment of the foregoing and additional objects will become more fully apparent hereinafter, and still other objects will be apparent to one skilled in the art.

Description of the preferred embodiments of the invention

The invention in a preferred embodiment is illustrated by the accompanying drawings in which:

FIG. 1 is a plan view of a blank cut and scored for assembling a carton having the novel square-end feature according to the invention.

FIG. 2 is a perspective view of the carton erected from the blank of FIG. 1 showing the rear wall end flap folded over into overlapping position with regard to the bottom flap, and showing the front wall end flap, the top panel end flap, and the front panel end flap in open position about to be closed.

FIG. 3 is a cross-sectional view taken of the rear wall end flap 7 along the line 3—3 of FIG. 2.

FIG. 4 is a perspective view of the rear wall end flap 7 of the carton showing areas of embossment and debossment.

FIG. 5 is an end view of the carton showing the end flaps closed with the exception of the front panel end flap and the top panel end flap.

FIG. 6 is a perspective view of the sealed carton.

FIG. 7 is an end view of a carton, similar to the view of FIG. 5, wherein the front and rear wall end flaps have been folded first and the bottom end flaps are folded thereover, the bottom end flaps in this case constituting the outer end walls of the carton and being provided with the areas of embossment and debossment.

According to the invention, the usual carton is provided which is formed from an integral blank comprising panels including a bottom having end wall flaps hingedly connected to the ends thereof, a front wall hingedly con-

nected to one edge of the bottom having front wall end flaps hingedly connected to the ends thereof, and a rear wall hingedly connected to the other edge of the bottom having rear wall end flaps hingedly connected to the ends thereof. A top panel or cover is provided which is hingedly connected to the upper edge of the rear wall. The top panel is provided with top panel end flaps and a front panel. The front panel is provided at its ends with front panel end flaps which are overlapped by and affixed to the top panel end flaps. Detachable means, as for example an adhesive strip or an adhesive strip in combination with a tear strip, is provided at the edge of the front panel for affixing the front panel to the carton front wall.

Additionally, in the preferred embodiment, the top panel end flaps are each provided with a detachable adhesive panel connected thereto along a severance line. The structure of the carton is preferably so designed that adjacent blanks may be reversed for nesting together during the cutting process in order to conserve paperboard raw material. Suitable carton structures are found in U.S. Patent 3,281,054, issued October 25, 1966, and the novel square-end features of the present invention may be incorporated into these carton structures and styles as well as numerous others. The advantages enumerated for the cartons of U.S. Patent 3,281,054 also characterize the cartons of the present invention, which in addition have the important and novel square-end structure of the present invention.

According to one embodiment of the present invention, the carton bottom end flaps are folded in first. Then, one of the carton rear and front wall end flaps is folded over, followed by the other one of the front and rear wall end flaps, thereby providing an inner flap which is in turn overlapped by either the front or rear wall end flap, itself being overlapped in turn by the other one of said carton front and rear wall end flaps. The one of the front and rear wall end flaps which is folded first is, according to the invention, provided with a debossment, in the area of overlap with the other one of the carton rear and front wall end flaps, so that the last to be folded may in effect be seated therein. Then, the front panel end flap is folded over the carton front wall end flap, to seat in a further debossment in the area of overlap of the carton front wall end flap by said carton front panel end flap. In addition, an embossment is provided in an upper area of the carton rear wall end flap, where such will be overlapped by the carton top panel end flap, which is then folded over all preceding flaps. The result of this novel structure is to present a more nearly square end of the carton for sealing, which is especially adaptable to the employment of preapplied heat-sealing adhesive patches on the various carton end flaps. In addition, alignment of the scores between the carton panels and their end flaps with the exception of the scores between the carton top panel and its end flaps provides a further desirable feature of the invention and makes the squared-up carton end even more square and suitable for sealing on usually available carton sealing equipment and has the further beneficial effect of allowing an even superior seal and concomitant elimination of an even greater percentage of "leakers." Reversal of the order of folding the bottom end flaps and front and rear wall flaps is contemplated, the necessary embossment and debossment then being present on the bottom end flaps, and this alternative structure, which presents the same advantages, will be discussed more fully in connection with FIG. 7 hereof.

Specific reference to the drawings

Reference is now made to the accompanying drawings for a better understanding of the invention, wherein all the parts are numbered and wherein the same numbers are used to refer to corresponding parts thereof, and wherein areas having an adhesive applied thereto are indicated by stippled shading and areas having an embossment or debossment are indicated by a series of horizontal or vertical lines.

In a preferred form, the carton of the invention may be constructed from an integral blank, as illustrated in FIG. 1, and comprises a bottom 1, and a front wall 2, and a rear wall 3, both hingedly connected to the bottom 1. A cover or top panel 4 is hingedly connected to the rear wall 3. The bottom 1 is provided at its ends with end flaps 5 hingedly connected thereto, front wall 2 is provided at its ends with front wall end flaps 6 hingedly connected thereto, and rear wall 3 is provided with rear wall end flaps 7 hingedly connected thereto.

Top panel 4 is provided with end flaps 8 comprising end wall panels 9 having adhesive panels 10 connected thereto at severance or fracture lines 11. The top panel 4 is also provided at its forward edge with a cover flap 12 comprising a front panel 13, and a severance or fracture line 14 defining a detachable tear strip having a tab or graspable portion 16 at one end thereof. The adhesive panel 15 may be adhesively affixed to the front wall in any one of a number of conventional ways, as shown by means of isolated adhesive areas 17. These may alternatively be provided on the surface of the front wall, again as conventional in the art. If desired, suitable glue resist coatings or glue resist ink, or both, may be advantageously applied between the adhesive areas to prevent adhesion at such places when a general application of adhesive is provided.

The front panel 12 is provided at its ends with end flaps 18 for being affixed to the top panel end flaps 8. The length of the front panel end flaps is preferably greater than the width of the top panel end flaps and the width of the front panel end flaps is preferably also less than the width of the top panel end flaps, but this is not essential.

As shown, scores at the junctures between all panels and end flaps are aligned, except the scores at the juncture between top panel 4 and end flaps 8, which are offset outwardly. The scores between front panel 13 and its end flaps are offset inwardly with respect to the scores between panel 4 and flaps 8. The dotted lines show the position of scores as previously located in cartons of the prior art for purposes of attempting to avoid end closure problems, when such scores between panels and end flaps were not all aligned. The dotted lines are 27*a*, 30*a* and 31*a*.

The lower portions of the terminal edges of the rear wall end flaps are each provided with an oblique recession 19, receding from the forward-most terminal edge 21 toward the bottom edge of the flap 7 to a vertical edge 22 having the same length as the edge 21. The forward edge 21 is preferably positioned a sufficient distance from the bottom edge of the flap 7 so that the edge 21 clears the adhesive area 23 carried on the front wall end flap 6 when the flaps 6 and 7 are folded together. A rectangular corner recess 20 is also provided in the upper terminal corner of the rear wall end flap 7 to facilitate nesting. The oblique receding edge 19 is preferably straight and has a further function in that it permits oblique edge 19 of an adjacent blank to nest closely therewith. In the broader aspects of the invention, the recess 20 may be omitted, as may the oblique recession 19 and the other details of the carton rear wall end flaps, providing only that the debossment 25 is present when the carton front wall end flaps 6 and the carton rear wall end flaps 7 fold into overlapping position. Which flap is folded first, and bears the debossment, is of no significance in the broader aspects of the invention. If these flaps do not overlap, the debossment 25 can be omitted.

The carton front wall end flaps 6, the carton rear wall end flaps 7, and the top panel end flaps 8 are all provided with adhesive areas 23, as shown in FIG. 1.

In addition, the carton front wall end flaps 6 are provided with areas of debossment 24 where these will be overlapped in the erected carton by the carton front panel end flaps 18. Carton rear wall end flaps 7, which in this

particular embodiment are folded before the carton front wall end flaps **6**, are provided with a debossment **25**, in the area in which they will be overlapped by the carton front wall end flaps **6**, thereby providing a seat for the carton front wall end flaps **6** in the area of overlapping. Moreover, carton rear wall end flaps **7** are also provided with an embossment **26** in the area in which these end flaps will be overlapped in the erected carton by the top panel end flaps **8**. This area of embossment, identified as **26**, coincides in the erected carton to the tear-out portion **10** of the top panel end flaps **8**.

In assembling the carton, the carton blank may be folded at the score between the bottom **1** and rear wall **3**. The front panel **13** is then folded over and the adhesive panel **15** affixed to the outer surface of the front wall **2**, forming a folded tube. Alternatively, the front wall **2** may be folded over at the score connecting it with the bottom **1** and the adhesive panel **15** may then be glued to the outer surface of the front wall **2** in the same manner. In either form the carton so folded occupies litttle space and may be shipped to the packager for filling and sealing.

To erect the carton further for filling, the folded carton is squared up, as on a conventional squaring machine. It is at this point that the square-end structure of the present invention becomes of great significance, especially since conventional carton erecting and sealing equipment generally employs flat surfaces, whether or not a mandrel (also having a flat end surface) is also employed.

In any event, one end of the carton is closed by first folding bottom flap **5**. The rear wall end flap **7** and the front wall end flap **6** are then folded in, the front wall end flap overlapping the rear wall end flap **7**. The contour provided by the recess **19** permits the terminal edge **21** of the rear wall end flap **7** to clear the adhesive area **23** on the front wall end flap **6**. In addition, the debossment **25** on the rear wall end flap **7** permits the front wall end flap **6**, when lapped thereover, to seat conveniently in the area of debossment.

FIG. 2 shows the carton at approximately this stage in its erection, after having been squared up and with the rear wall end flap **7** folded in against bottom end flap **1**, with the front wall end flap **6** about to be seated in the area of debossment **25**.

The front panel end flap **18** is then folded over against front wall end flap **6**, followed finally by folding over of the top panel end flap **8**. The greater length of the flap **18** permits it to be engaged and folded over by the plough of the erecting and folding apparatus before the flap **8**, usually of somewhat lesser width, is engaged. Flap **18** is seated conveniently in the area of debossment **24**, located at the upper edge of front wall end flap **6** adjacent the score at which it is hingedly connected to the front wall **2**.

When top panel end flap **8** is finally folded over, it engages the area of embossment **26** on the rear wall end flap **7**, located adjacent the score at which the rear wall end flap **7** is hingedly connected to the rear wall **3**. As will be noted, it is to this embossed area **26** that the adhesive **23** of the adhesive panel **10** of the top panel end flap **8** is ultimately secured.

Heat is then applied to activate the adhesive, causing the front wall end flap **6** to become adhesively secured to the rear wall end flap **7** and also to the bottom end flap **5**. The adhesive panel **10** becomes adhesively affixed to the rear wall end flap **7** at the area of embossment **26** and the front panel end flap **18** becomes affixed to end wall panel **9** of top panel end flap **8** while seated in the area of debossment **24**. The seal between front wall end flap **6** and rear wall end flap **7** is obviously also effected while front wall end flap **6** is seated in the area of debossment **25** of rear wall end flap **7**, all as indicated and more clearly understood from FIG. 2 of the drawings.

The carton may then be filled through the end remaining open in conventional manner, and the open end may subsequently be closed and sealed in the same manner, to form a completely sealed carton as shown in FIG. 6. Alternatively, the first carton end may be closed and/or tacked, as with glue, but not sealed, and then both carton ends sealed concurrently or simultaneously after filling of the carton.

The carton is seen in this condition, with front wall end flap **6** in sealing engagement with rear wall end flap **7** but prior to folding in of front panel end flap **18** and top panel end flap **8**, in FIG. 5 of the drawing.

FIG. 3 of the drawings shows a cross-sectional view of rear wall end flap **7**, showing in exaggerated elevation the embossing and debossing which is present on this flap. As already described, top panel end flap **8** by means of its adhesive panel **10** is sealed to the area of embossment **26** on flap **7**, whereas front wall end flap **6** is sealed to flap **7** in the area of debossment designated **25**.

This is again seen from FIG. 4 of the drawings, which is a perspective view of flap **7** of the carton, showing area of embossment **26** and area of debossment **25** which receives front wall end flap **6** which is ultimately sealed thereto during erecting and sealing of the carton.

The carton may be opened by grasping the tab **16** and removing the tear strip defined by fracture lines **14**. As the cover is subsequently lifted open, end wall panels **9** of top panel end flaps **8** are parted from adhesive panels **10** along severance lines **11**. The cover may be reclosed for storing any unconsumed contents.

FIG. 7 shows an end view of a carton, similar to the view of FIG. 5, according to an alternative construction, showing bottom end flap *5a* bearing embossment *26a* and debossment *24a*. Such bottom end flaps *5a* with the specified embossment and debossment may be present in a carton otherwise having an identical structure to that described previously and shown in the other figures of the drawings, with the exception that, when such bottom end flap *5a* is present in the carton, embossment **26** is absent from rear wall end flaps **7** and debossment **24** is absent from front wall end flaps **6**. All of the structure of the carton as described previously will otherwise be unchanged. The outward appearance of the carton will likewise be substantially unchanged from that shown in FIG. 6 of the drawings, with the exception that, in erecting and closing the carton, bottom end flaps *5a* will not be folded first, but rather rear wall end flaps **7** and front wall end flaps **6** will be folded upon each other first, and then bottom end flaps *5a* will be folded thereover. Upon folding the front panel end flaps **18** in over bottom end flaps *5a*, end flaps **18** are received in debossments *24a*. Upon folding top panel end flaps **8** over the end of the carton, for sealing purposes, adhesive panel **10** engages the embosment *26a* at the upper rear corner of bottom end flap *5a*. The carton end so produced is thus squared in the same manner as the embodiment previously shown and described, and erection and sealing is otherwise identical to that previously described.

The unique squared-up end structure of the carton, provided by the two areas of debossment and the area of embossment on the end flaps thereof, especially when taken together with the outwardly offset score defining the juncture between top panel **4** and its end flaps **8**, as shown in FIG. 1, is uniquely satisfactory in providing a uniformly and securely sealed carton end which has in practice been found not subject to the usual rupture and leakage of previously designed cartons having usual carton end structures, whether or not certain scores between major panels and end flaps have been offset, as practiced in the recent past. As already stated, as practiced in the past, the scores defining the juncture between bottom and bottom end flaps, top panel and top panel end flaps, and front panel and its end flaps have been offset, the first inwardly and the second two outwardly, in order to obviate at least to a certain limited extent this problem of squaring up the carton ends and to facilitate closing and sealing and avoid the undesirable leakage, but without any noteworthy degree of success.

It is thus seen that, by the present invention, an economical and conveniently erected and sealed carton of sufficient durability for frequent opening and reclosing is produced, having a particular advantageously designed end structure which facilitates its closing and sealing on the usual flat-surface mandrels or other sealing equipment as presently used in practice, which carton is produced from an integral blank. By employment of the unique embossment-debossment structure on the end closure panels, especially together with the outwardly offset score line defining the juncture between the cover or top panel and its end flaps, all of the desirable objectives of the present invention are attained.

Although the invention has been described primarily as it would be practiced when a heat-sealable adhesive is carried directly on the carton blank, being pre-applied thereto, other types and forms of adhesives and other means of applying the adhesive to effect sealing of the carton may be employed. For example, plastic-, such as polyethylene-, coated or wax-coated paperboard, or laminated paperboard with openings for extrusion sealing, may also be employed for the cartons and carton blanks according to the invention.

Although, as shown in the drawings and described in the foregoing, the front panel comprises a tear strip means and an adhesive panel, or simply a removable adhesive panel, whereby said front panel is secured to said carton front wall, other means for securing said front panel to said carton front wall are available and may be employed with equal facility. Moreover, as is well known in the art, some cartons are provided for packaging of contents which do not require that the front panel be sealed, or even secured, to the carton front wall and in such cases the means for sealing or securing of said front panel to said carton front wall and any complementary tear strip means or removable adhesive panel may be dispensed with.

It is to be understood that the invention is not limited to the exact details of construction, operation, or exact materials or embodiments shown and described, as obvious modifications and equivalents will be apparent to one skilled in the art, and the invention is therefore to be limited only by the scope of the appended claims.

I claim:

1. In an integral carton blank adapted to be erected into a carton having a bottom, a front wall hingedly connected to one edge of said bottom, a rear wall hingedly connected to the opposite edge of said bottom, a top panel hingedly connected to the opposite edge of said rear wall, and a front panel hingedly connected to said top panel and adapted to overlap said front wall in the erected carton, said bottom having end flaps hingedly connected thereto, said rear wall having end flaps hingedly connected thereto, said front wall having end flaps hingedly connected thereto, said top panel having end flaps hingedly connected thereto, and said front panel having end flaps hingedly connected thereto, said bottom end flaps being adapted to be folded so as to constitute one layer of the end walls of the carton in the erected carton, said front wall end flaps and rear wall end flaps being adapted to overlap each other in the erected carton, said front panel end flaps being adapted to overlie said bottom end flaps or said front wall end flaps in the erected carton, and said top panel end flaps being adapted to overlie said front panel end flaps in the erected carton,

the improvement which comprises a debossment on the two end flaps selected from bottom and front wall end flaps which will be overlayed by said front panel end flaps in the area in which they will be overlayed toward the front of the erected carton, an embossment on one of the two end flaps selected from bottom and rear wall end flaps which will be overlayed by said top panel end flaps in the area in which they will be overlayed toward the rear of the erected carton, and a debossment of the one pair of flaps which will be the innermost of said front wall end flaps and said rear wall end flaps in the erected carton in the area in which they will be overlapped by the other of said front and rear wall end flaps, so as to provide a square end in the erected carton upon erection and sealing of the same.

2. In an integral carton blank adapted to be erected into a carton having a bottom, a front wall hingedly connected to one edge of said bottom, a rear wall hingedly connected to the opposite edge of said bottom, a top panel hingedly connected to the opposite edge of said rear wall, and a front panel hingedly connected to said top panel and adapated to overlap said front wall in the erected carton, said bottom having end flaps hingedly connected thereto, said rear wall having end flaps hingedly connected thereto, said front wall having end flaps hingedly connected thereto, said top panel having end flaps hingedly connected thereto, and said front panel having end flaps hingedly connected thereto, said bottom end flaps being adapted to be folded first and to constitute the inner end flaps in the erected carton, and said front wall end flaps and rear wall end flaps being adapted to overlie said bottom end flaps and to overlap each other in the erected carton, said front panel end flaps being adapted to overlie the front wall end flaps in the erected carton, and said top panel end flaps being adapted to overlie said front panel end flaps in the erected carton,

the improvement which comprises a debossment on said front wall end flaps in the area in which they will be overlayed by said front panel end flaps in the erected carton, an embossment in an area of the rear wall end flaps where they will be overlayed by said top panel end flaps in the erected carton, and a debossment of the one pair of flaps which will be the innermost of said front wall end flaps and said rear wall end flaps in the erected carton in the area in which they will be overlapped by the other of said front and rear wall end flaps, so as to provide a square end in the erected carton upon erection and sealing of the same.

3. The carton blank of claim 2, wherein, in addition to the said embossment and debossments, the scores defining the juncture between the bottom and the bottom end flaps are substantially aligned with the scores defining the juncture between the front and rear walls and their respective end flaps, and wherein the scores defining the juncture between the carton top panel and its end flaps are offset outwardly with respect to the scores defining the juncture between the carton rear wall and its outer end flaps, and wherein the scores defining the juncture between the front panel and its end flaps are offset inwardly with respect to the scores defining the juncture between the carton top panel and its end flaps.

4. The carton blank of claim 3, wherein the scores defining the juncture between the front panel and its end flaps are substantially aligned with the scores defining the juncture between the carton rear wall and its end flaps.

5. The carton blank of claim 3, wherein said carton front panel comprises tear strip means and an adhesive panel adapted to be secured to said carton front wall below said tear strip means.

6. The carton blank of claim 3, including adhesive means for securing carton end flaps together comprising a preapplied heat-sealing adhesive.

7. A carton erected from an integral carton blank having a bottom, a front wall hingedly connected to one edge of said bottom, a rear wall hingedly connected to the opposite edge of said bottom, a top panel hingedly connected to the opposite edge of said rear wall, and a front panel hingedly connected to said top panel and overlapping said front wall, said bottom having end flaps hingedly connected thereto, said rear wall having end flaps hingedly connected thereto, said front wall having end flaps

hingedly connected thereto, said top panel having end flaps hingedly connected thereto, and said front panel having end flaps hingedly connected thereto, said bottom end flaps constituting one layer of the end walls of the carton, said front wall end flaps and rear wall end flaps overlapping each other, said front panel end flaps overlying said bottom end flaps or said front wall end flaps, and said top panel end flaps overlying said front panel end flaps,

the improvement which comprises a debossment on the two end flaps selected from bottom and front wall end flaps which are overlayed by said front panel end flaps in the area in which they are overlayed toward the front of the erected carton, an embossment on one of the two end flaps selected from bottom and rear wall end flaps which are overlayed by said top panel end flaps in the area in which they are overlayed toward the rear of the erected carton and a debossment of the one pair of flaps which is the innermost of said front wall end flaps and said rear wall end flaps in the area in which they are overlapped by the other of said front and rear wall end flaps, so as to provide a square end in the carton flaps of the carton being adhesively secured to each other.

8. A carton erected from an integral blank and having a bottom, a front wall hingedly connected to one edge of said bottom, a rear wall hingedly connected to the opposite edge of said bottom, a top panel hingedly connected to the opposite edge of said rear wall, and a front panel hingedly connected to said top panel and overlapping said front wall, said bottom having end flaps hingedly connected thereto, said rear wall having end flaps hingedly connected thereto, said front wall having end flaps hingedly connected thereto, said top panel having end flaps hingedly connected thereto, and said front panel having end flaps hingedly connected thereto, said bottom end flaps being folded first and constituting the inner end flaps, and said front wall end flaps and rear wall end flaps overlying said bottom end flaps and overlapping each other, said front panel end flaps overlying the front wall end flaps, and said top panel end flaps overlying said front panel end flaps and said rear wall end flaps,

the improvement which comprises a debossment on said front wall end flaps in the area in which they are overlayed by said front panel end flaps, an embossment in an area of the rear wall,

end flaps where they are overlayed by said top panel end flaps, and a debossment of the one pair of flaps which is the innermost of said front wall end flaps and said rear wall end flaps in the area in which they are overlapped by the other of said front and rear wall end flaps, so as to provide a square end in the carton, flaps of the carton being adhesively secured to each other.

9. An erected and sealed carton of claim 8, wherein, in addition to the said embossment and debossments, the scores defining the juncture between the bottom and the bottom end flaps are substantially aligned with the scores defining the juncture between the front and rear walls and their respective end flaps, and wherein the scores defining the juncture between the carton top panel and its end flaps are offset outwardly with respect to the scores defining the juncture between the carton rear wall and its outer end flaps, and wherein the scores defining the juncture between the front panel and its end flaps are offset inwardly with respect to the scores defining the juncture between the carton top panel and its end flaps.

10. The carton of claim 8, wherein said front panel is adhesively secured to said carton front wall.

11. The carton of claim 9, wherein the scores defining the juncture between the front panel and its end flaps are substantially aligned with the scores defining the juncture between the carton rear wall and its end flaps.

12. The carton of claim 9, wherein said carton front panel comprises tear strip means and an adhesive panel secured to said carton front wall below said tear strip means.

13. The carton of claim 9, including adhesive means securing carton end flaps together comprising a heat-sealing adhesive.

14. The carton of claim 8, wherein said rear wall end flaps underlie said front wall end flaps.

15. The carton of claim 7, wherein the top panel end flaps comprise a detachable adhesive panel and wherein said detachable adhesive panel is secured to said embossment toward the rear of the erected carton.

16. The carton blank of claim 1, wherein the top panel end flaps comprise a detachable adhesive panel and wherein said detachable adhesive panel is adapted to be secured to said embossment which will be located toward the rear of the erected carton.

17. In an integral carton blank adapted to be erected into a carton having a bottom, a front wall hingedly connected to one edge of said bottom, a rear wall hingedly connected to the opposite edge of said bottom, a top panel hingedly connected to the opposite edge of said rear wall, and a front panel hingedly connected to said top panel and adapted to overlap said front wall in the erected carton, said bottom having end flaps hingedly connected thereto, said rear wall having end flaps hingedly connected thereto, said front wall having end flaps hingedly connected thereto, said top panel having end flaps hingedly connected thereto, and said front panel having end flaps hingedly connected thereto, said bottom end flaps being adapted to be folded so as to constitute one layer of the end walls of the carton in the erected carton, said front wall end flaps and rear wall end flaps being adapted to provide end wall sections in the erected carton, said front panel end flaps being adapted to overlie said bottom end flaps or said front wall end flaps in the erected carton, and said top panel end flaps being adapted to overlie said front panel end flaps in the erected carton,

the improvement which comprises a debossment on the two end flaps selected from bottom and front wall end flaps which will be overlayed by said front panel end flaps in the area in which they will be overlayed toward the front of the erected carton and an embossment on one of the two end flaps selected from bottom and rear wall end flaps which will be overlayed by said top panel end flaps in the area in which they will be overlayed toward the rear of the erected carton, so as to provide a more nearly square end in the erected carton upon erection and sealing of the same.

18. In an integral carton blank adapted to be erected into a carton having a bottom, a front wall hingedly connected to one edge of said bottom, a rear wall hingedly connected to the opposite edge of said bottom, a top panel hingedly connected to the opposite edge of said rear wall, and a front panel hingedly connected to said top panel and adapted to overlap said front wall in the erected carton, said bottom having end flaps hingedly connected thereto, said rear wall having end flaps hingedly connected thereto, said front wall having end flaps hingedly connected thereto, said top panel having end flaps hingedly connected thereto, and said front panel having end flaps hingedly connected thereto, said bottom end flaps being adapted to be folded first and to constitute the inner end flaps in the erected carton, and said front wall end flaps and rear wall end flaps being adapted to overlie said bottom end flaps in the erected carton, said front panel end flaps being adapted to overlie the front wall end flaps in the erected carton, and said top panel end flaps being adapted to overlie said front panel end flaps in the erected carton,

the improvement which comprises a debossment on said front wall end flaps in the area in which they will be overlayed by said front panel end flaps in

the erected carton and an embossment in an area of the rear wall end flaps where they will be overlayed by said top panel end flaps in the erected carton, so as to provide a more nearly square end in the erected carton upon erection and sealing of the same.

19. A carton erected from an integral carton blank having a bottom, a front wall hingedly connected to one edge of said bottom, a rear wall hingedly connected to the opposite edge of said bottom, a top panel hingedly connected to the opposite edge of said rear wall, and a front panel hingedly connected to said top panel and overlapping said front wall, said bottom having end flaps hingedly connected thereto, said rear wall having end flaps hingedly connected thereto, said front wall having end flaps hingedly connected thereto, said top panel having end flaps hingedly connected thereto, and said front panel having end flaps hingedly connected thereto, said bottom end flaps constituting one layer of the end walls of the carton, said front wall end flaps and rear wall end flaps providing further end wall sections of said carton, said front panel end flaps overlying said bottom end flaps or said front wall end flaps, and said top panel end flaps overlying said front panel end flaps,

the improvement which comprises a debossment on the two end flaps selected from bottom and front wall end flaps which are overlayed by said front panel end flaps in the area in which they are overlayed toward the front of the erected carton and an embossment on one of the two end flaps selected from bottom and rear wall end flaps which are overlayed by said top panel end flaps in the area in which they are overlayed toward the rear of the erected carton, so as to provide a more nearly square end in the carton, flaps of the carton being adhesively secured to each other.

20. A carton erected from an integral blank and having a bottom, a front wall hingedly connected to one edge of said bottom, a rear wall hingedly connected to

the opposite edge of said bottom, a top panel hingedly connected to the opposite edge of said rear wall, and a front panel hingedly connected to said top panel and overlapping said front wall, said bottom having end flaps hingedly connected thereto, said rear wall having end flaps hingedly connected thereto, said front wall having end flaps hingedly connected thereto, said top panel having end flaps hingedly connected thereto, and said front panel having end flaps hingedly connected thereto, said bottom end flaps being folded first and constituting the inner end flaps, and said front wall end flaps and rear wall end flaps overlying said bottom end flaps, said front panel end flaps overlying the front wall end flaps, and said top panel end flaps overlying said front panel end flaps, and said rear wall end flaps,

the improvement which comprises a debossment on said front wall end flaps in the area in which they are overlayed by said front panel end flaps and an embossment in an area of the rear wall end flaps where they are overlayed by said top panel end flaps, so as to provide a more nearly square end in the carton, flaps of the carton being adhesively secured to each other.

References Cited

UNITED STATES PATENTS

2,259,822	10/1941	Kienlen	229—48
3,003,677	10/1961	Hennessey	229—37
3,147,904	9/1964	Larson	229—51
3,194,474	7/1965	Rumberger	229—37
3,197,109	7/1965	Nelson	229—37
3,239,129	3/1966	Schilling	229—51
3,270,946	9/1966	Redpath et al.	229—51
3,281,054	10/1966	Buttery et al.	229—51
3,295,743	1/1967	Redpath et al.	229—51
3,315,870	4/1967	Barnes	229—37

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