

Sept. 6, 1966

D. E. BARNES

3,270,941

EASY OPEN AND RECLOSABLE CARTON

Filed Nov. 3, 1964

2 Sheets-Sheet 1

FIG. 1

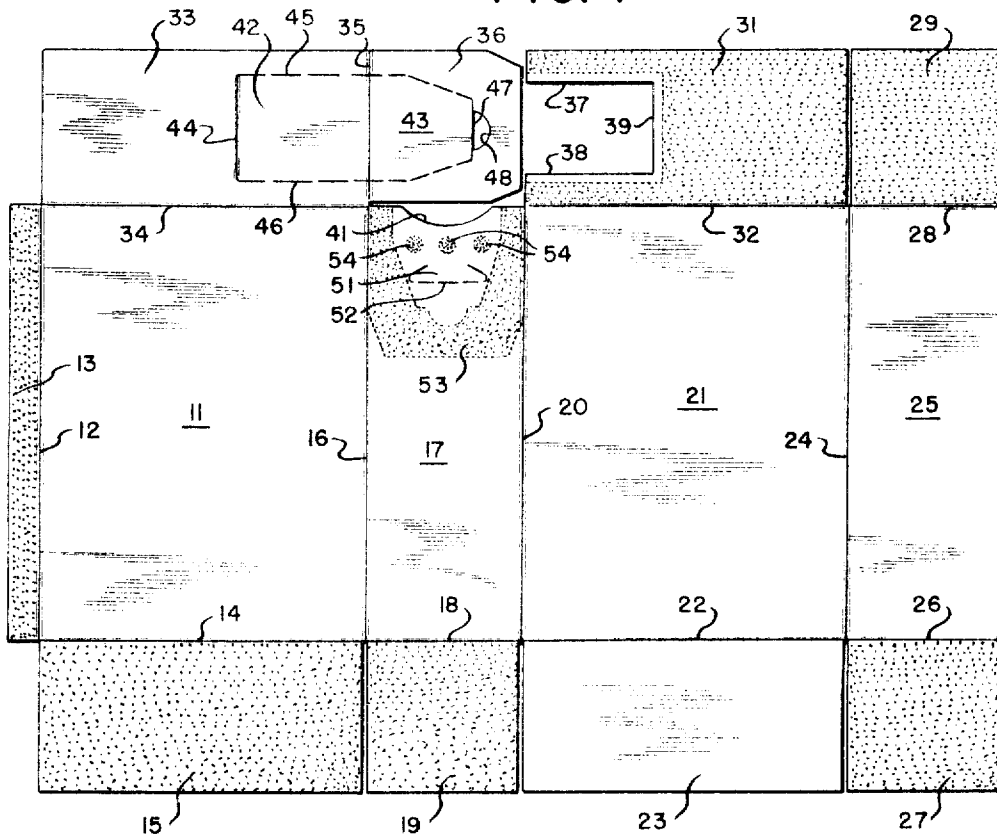
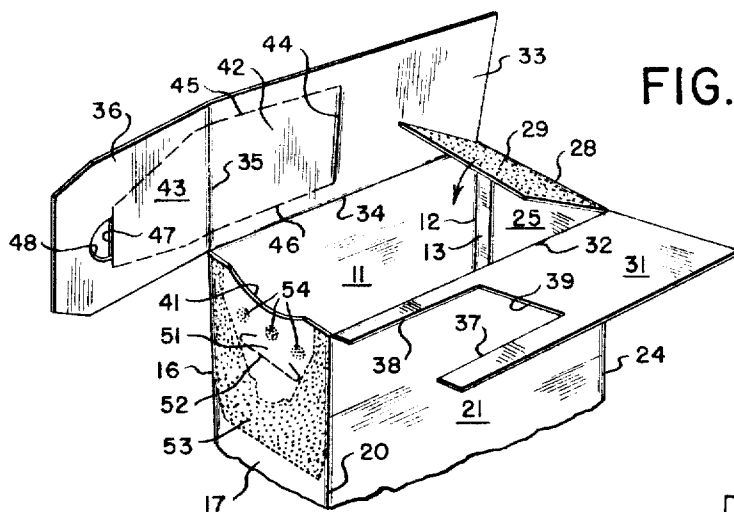


FIG. 2



INVENTOR
Donald E. Barnes
BY *L. Haman Holland*
ATTORNEY

Sept. 6, 1966

D. E. BARNES

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FIG. 3

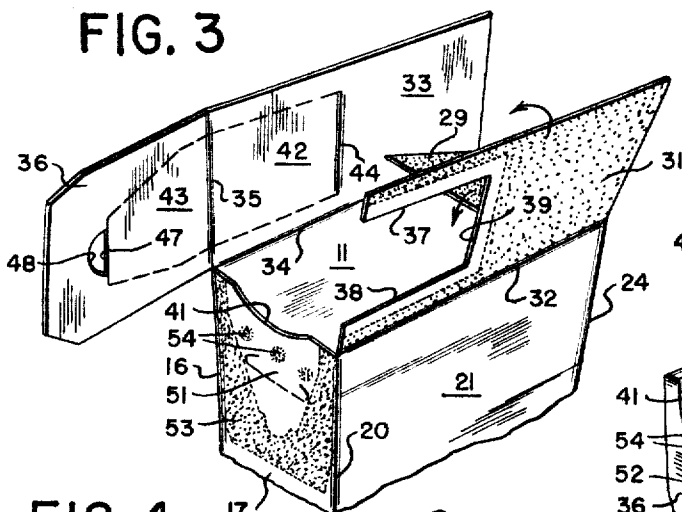


FIG. 6

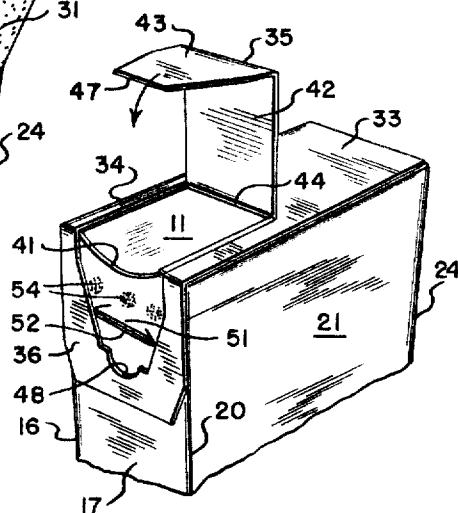


FIG. 4

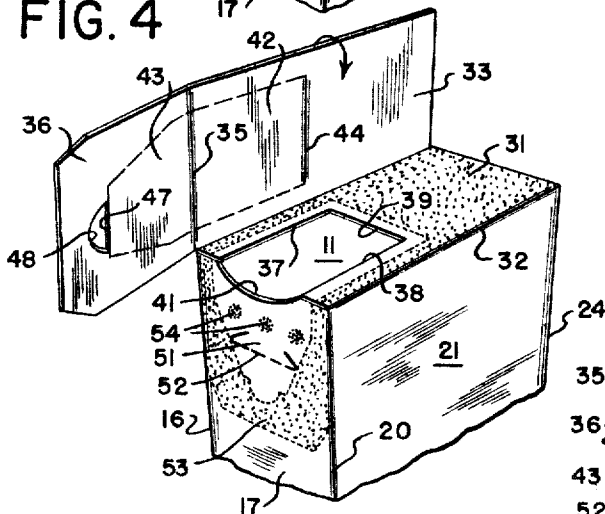


FIG. 7

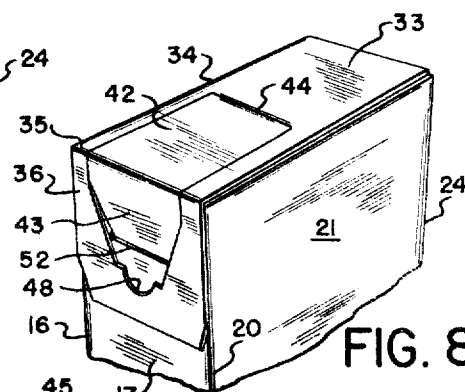


FIG. 5

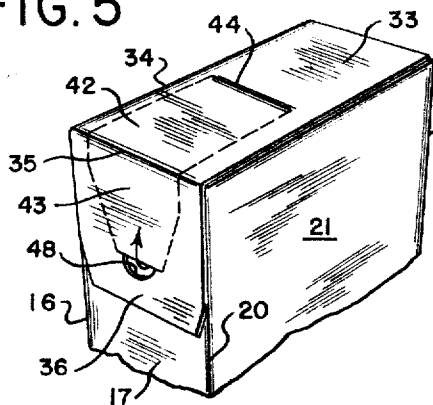
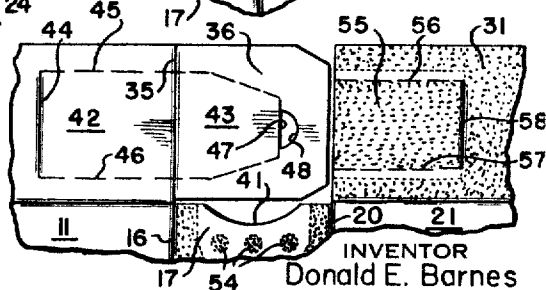


FIG. 8



INVENTOR
Donald E. Barnes

BY *L. Norman Hubbard*
ATTORNEY

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3,270,941

EASY OPEN AND RECLOSABLE CARTON
Donald E. Barnes, Minnetonka, Minn., assignor to General Foods Corporation, White Plains, N.Y., a corporation of Delaware

Filed Nov. 3, 1964, Ser. No. 408,600
20 Claims. (Cl. 229-17)

This invention relates generally to containers adaptable for storing and dispensing a free flowing dry product, the invention relating more particularly to cartons constructed to provide an easy opening feature designed to facilitate pouring of the product from the carton and which may be easily and securely reclosed in a manner which contributes to the structural rigidity of the carton while at the same time preventing spillage and affording moisture protection to the product during pantry shelf life storage.

One of the problems which has been encountered in the design of cartons of this class has been to provide an easy opening, reclosable construction which, in addition to forming a pouring orifice when opened, so as to concentrate the flow of the product in a concentrated well-defined stream, also provides for a firm and secure reclosure of the carton such that the structural integrity and moisture protection qualities will remain substantially the same as before the carton was opened. This problem is overcome in the present instance by provision of a pouring orifice comprised of openings in the top flaps joined to the side wall panels, which openings communicate with a recessed cut-out in the upper edge of the contiguous end wall panel. The recessed cut-out serves to direct and concentrate the stream of product when the carton is tilted sufficiently to achieve product flow. For initially sealing the carton the pouring orifice is covered or enclosed by a section of at least one of the top flaps joined to a side panel, together with an end flap joined to said side flap and bent at right angles thereto for adhesion to the upper portion of the end panel containing said recessed cut-out. A portion of said end flap and the top flap to which it is joined is scored to define an elongate tear strip which is easily severable manually from the respective flaps to expose the pouring orifice as aforesaid. The portion of said end flap exclusive of the tear strip remains adhered to the end panel to constitute joined so-called Van Buren ears which add structural rigidity to the carton even when the tear strip is removed from sealing relationship to the orifice. Upon reclosure of the carton the free end of the tear strip is tucked into a slit appropriately located in the end panel which frictionally engages the free end of said tear strip to firmly secure same in the closed position and thus maintain good moisture protection for the product with the original structural rigidity of the carton substantially unimpaired.

It is therefore an object of this invention to improve upon carton structures having easy opening and reclosing features and adapted to store and dispense a free flowing dry product.

It is a further object of this invention to improve the pouring action of an easy opening and reclosing carton of the class herein described.

It is a further object of the invention to improve the reclosing feature of an easy opening and reclosable carton of the class herein described.

Further objects of the invention together with features contributing thereto and the advantages accruing therefrom will be apparent from the following description when read in conjunction with the drawing wherein:

FIG. 1 is a plan view of a carton blank of the instant invention before erection thereof but indicating additionally the areas to which glue or other adhesive is ap-

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plied during subsequent erection of the blank into a carton structure;

FIG. 2 is a perspective view of the top portion of the carton during an early stage in its erection;

FIG. 3 is a view similar to FIG. 2 at a later stage in the erection of the carton;

FIG. 4 is a similar view at a still later stage in the erection of the carton;

FIG. 5 is a similar perspective view showing the top portion of the carton completely erected and sealed;

FIG. 6 is a view similar to FIG. 5 but showing the easy opening feature in the open position;

FIG. 7 is a view similar to FIG. 6 but showing the easy opening feature in the reclosed position;

FIG. 8 is a view of a portion of a slightly modified carton blank in accordance with a second embodiment of the invention.

Referring now to the drawing, FIG. 1 illustrates a carton blank before erection and which includes a side panel 11 to which is joined at one side edge along a fold line 12 a glue flap 13 and to which is joined along its bottom edge at fold line 14 a bottom closure flap 15. Joined to the opposite side of side panel 11 along fold line 16 is an end wall panel 17 to the bottom edge of which is joined at fold line 18 a bottom dust flap 19. Joined to the other side edge of end panel 17 along fold line 20 is a side wall panel 21. The side wall panel 21 is joined along its bottom edge along fold line 22 to a bottom closure flap 23 and is joined at its other side edge along fold line 24 with an end panel 25. The end panel 25 is joined along its bottom edge fold line 26 with a bottom dust flap 27 and at its upper edge along fold line 28 with a top dust flap 29. The blank may be formed of any suitable semirigid carton material.

A top closure flap 31 is joined to the upper edge of side panel 21 along a fold line 32, and a top closure flap 33 is joined to the upper edge of side panel 11 along a fold line 34. Secured to one edge of the flap 33 along a fold line 35 is an end closure flap 36 which in the erected carton depends from the flap 33 in overlying relation to the upper portion of end panel 17 to which it is selectively adhered as hereinafter more fully described.

In FIG. 1, for purposes of clarity in understanding the carton structure after erection and sealing, the respective surfaces of the carton blank to which glue or other suitable adhesive is applied during the course of carton erection have been indicated by stippling. It should be understood, however, that the adhesive as thus indicated is not applied to the carton blank as such prior to or as except as incident to its erection into a carton structure.

In the embodiment of the invention as shown in FIG. 1, the top closure flap 31 is cut out along a portion of one edge to provide a portion of a pouring orifice. The orifice is defined by side edges 37, 38 joined by a transversely running edge 39. In the present instance, the cut-out portion is preferably rectangular in outline, and it will be noted that marginal surfaces of the flap 31 bordering the edges 37, 38 and 39 do not have adhesive applied thereto for reasons which will hereinafter be fully explained.

The top edge of end panel 17 is also cut out over a portion of its length to constitute the remaining portion of the pouring orifice, said cut-out portion from the end panel 17 being defined by an arcuate edge 41. When the carton is erected the cut-out portion of the end panel 17 is disposed in communication with the cut-out portion of top closure flap 31 whereby said cut-out portions jointly define a pouring orifice by which the flow of the product is constrained to a concentrated stream due to the contour of the portion cut out from end panel 17.

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Although the contour of said cut-out from panel 17 is shown as being arcuate, it of course should be understood that cut-outs having a contour other than that shown such as a V-shape or even a rectangular shape could be provided to achieve the same or similar result.

The easy-opening feature includes a tear strip consisting of a portion 42 of the top closure flap 33 and a contiguous portion 43 of the end closure flap 36. Said tear strip is defined by a fold line 44, scorelines 45, 46 extending across flaps 33, 36 and tapering inwardly to terminate at an edge 47. The edge 47 at its extremities is defined by scorelines in the end flap 36 and at its intermediate portion constitutes a free edge by virtue of a contiguous cut-out section in the flap defined by said intermediate portion of edge 47 and an arcuate edge 48 of flap 36. The construction facilitates grasping of the edge 47 preparatory to severing the tear strip 42, 43 up to fold line 44 from the carton.

As before mentioned, when the carton is erected the end flap 36 is disposed in overlying relation to the top portion of the end wall panel 17, the tear strip portion 43 being selectively adhered thereto. For reclosure purposes the end wall panel 17 is formed with a severable tab 51 defined by a scoreline 52, the ends of which are turned backwardly so that when the tab 51 is subsequently severed from the end wall panel 17 along line 52 the opening thus created will constitute a tapered slot adapted to receive the tapered free end of the tear strip portion 43 to provide a firm, tight fitting retainer securing the tear strip for reclosure purposes.

Erection of the carton is achieved by first forming the carton blank of FIG. 1 into a tubular construction of a rectangular cross section. This is accomplished by bending the carton blank at substantially right angles on fold lines 12, 16, 20 and 24 in such a manner that the glue flap 13 will be disposed interiorly of the free edge of end wall panel 25, the tubular construction being maintained by virtue of adherence of the glue flap 13, to which adhesive is applied incident to erection, to the interior surface of the end wall panel 25. Thereafter, the top and bottom closures are sealed, the first to be sealed depending upon whether or not the carton is to be top or bottom-filled. Assuming for the purposes of this description that the carton is to be top-filled, the erection of the carton would continue by bending inwardly the bottom flaps 15, 19, 23 and 27 in the conventional manner with the dust flaps 19, 27 first bent or folded inwardly followed by the bottom closure flap 23 and then the bottom closure flap 15, the bottom closure being sealed by virtue of application of adhesive to flaps 19, 27 and closure flap 15. The carton is then filled with product from the top, and upon completion of the filling the top closure is sealed in successive stages as indicated by FIGS. 2-5. Sealing of the top closure is accomplished by first folding in the dust flap 29 as indicated in FIG. 2. The procedure continues by folding over the top closure flap 31, as indicated in FIG. 3, which adheres to the dust flap 29 by virtue of the adhesive applied to the surface of flap 25. The next step is the folding over of the top flap 33 and attached end flap 36, as indicated in FIG. 4, flap 33 being adhered to closure flap 31 due to the application of adhesive to the surface of flap 31. It will be noted that the pattern of adhesive applied to flap 31 leaves a small adhesive-free border around the cut-out of the flap, the reason for this being that the tear strip portion 42 in flap 33 is not identical in surface area with the cut-out in flap 31, the tear strip portion 42 being slightly oversize so that after the carton has been opened, the tear strip portion 42, upon subsequent reclosure, will be supported in the reclosed position by the adhesive-free surfaces of flap 31 bordering the cut-out therein defined by edges 37, 38 and 39. This construction prevents inadvertent depression of the tear strip through the orifice and affords a better moisture barrier than if the tear strip edges 45, 46 coincided with orifice

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edges 37, 38. Accordingly, the pattern of the adhesion applied to the flap 31 is complementary to the surface area of flap 33 exclusive of the tear strip portion 42. This also enables the tear strip to be easily removed upon initial opening since there will be no adhesive binding it to the top closure flap 31.

The final step in the sealing of the carton initially is accomplished by folding down the end closure flap 36, as indicated in FIG. 5, which adheres to the end wall panel 17 by virtue of the adhesive selectively applied to the top portion of panel 17. It will be noted that adhesive is applied to end wall panel 17 in a pattern 53 which is complementary to the surface area of flap 36 exclusive of the tear strip portion 43 and the cut-out defined by the arcuate edge 48. The adhesive pattern also includes application of an adhesive in discrete spots 54 located so as to releasably secure an intermediate surface area of tear strip portion 43 to the end wall panel 17. The bond effected by the spots 54 of adhesive might in other words be described as a limited bond of sufficient strength to retain the tear strip portion 43 sealed and intact with the flap 36 under normal stresses encountered in handling and shipping of the carton but of insufficient strength to prevent or substantially impair the easy severance of the tear strip portion 43 from the end wall panel 17 when it is desired to actuate the tear strip for the purpose of initially opening the carton.

FIG. 6 illustrates the carton with the closure opened, the tear strip 42, 43 being raised to expose the pouring orifice defined by edges 37, 38 and 39 of top closure flap 31 and the edge 41 in the end wall panel 17. It will be noted that the orifice is of such a contour, by virtue of the arcuate edge 41, as to provide for improved dispensing of the product in that the flow thereof tends to be concentrated in a stream which may be easily and readily directed into whatever receptacle may be employed for receiving the product.

FIG. 7 illustrates the carton after reclosure wherein the tapered free end of tear strip portion 43 is tucked into the cooperating tapered slot provided in end wall panel 17, which construction provides a tight fitting secure grip on the tear strip to retain same in firm sealing relationship to the pouring orifice, thus providing good moisture protection to the contained product. It should further be noted that upon reclosure the structural integrity and strength of the carton remains substantially unimpaired from that of its initially sealed condition by virtue of the secure grip on the tear strip, as aforementioned, in addition to the fact that the portion of the end closure flap 36, exclusive of the tear strip portion 43, remains adhered to the end wall panel 17, thus tending to resist stresses and strains, encountered during handling which otherwise would tend to deform the structure and impair the tight seal afforded by the tear strip when in the reclosed position.

FIG. 8 is a fragmentary view of a portion of a carton blank embodying a slightly modified form of the instant invention. In this modified version the section of the top closure flap 31, which in the first described embodiment is initially cut away to define the pouring orifice, is left intact for the original sealing of the carton. This section of the flap, in the modified version of FIG. 8, constitutes in effect a tear strip 55 defined by weakened tear or scorelines 56, 57 and a transverse fold line 58. During erection of the carton, adhesive is applied to the surface of the tear strip 55 to effect a bond between it and the undersurface of tear strip portion 42 so that when the tear strip portion 43 in the top closure flap 33 is pulled to initially open the carton, the tear strip portion 55 will be severed along lines 56, 57 from the flap 31 and thus form a pouring orifice of the same character as heretofore described in conjunction with the first described embodiment. As in the first described embodiment, the application of adhesive to flap 31 is such as to leave a marginal area of the orifice along scorelines

56, 57 adhesive-free, the lateral dimension of tear strip 55 being slightly less than that of the tear strip portion 42 in flap 33. However, the fold line 58 is disposed so as to register in substantial alignment with the fold line 44 after the carton is erected so as to establish a substantially common pivot axis for the respective tear strips to facilitate their bending upon opening of the carton. The modified form of the invention according to FIG. 8, it will be noted, provides a double-ply closure with respect to the pouring orifice. For this reason it has particular advantages in applications where moisture protection of the product is of major importance.

While there have been shown and described what are considered to be the preferred forms of the invention, it will of course be understood that obvious changes in form could be made without departing from the spirit of the invention. It is therefore intended that the invention be not limited to the precise forms herein shown and described nor to anything less than the whole of the invention herein disclosed as hereinafter claimed.

What is claimed and desired to be secured by Letters Patent is:

1. A carton for containing a dry free-flowing product and comprised of opposed side and end panels of semi-rigid packaging material secured together in a rectangular tubular construction, a bottom closure formed of side panel and end panel-joined flaps bent inwardly and secured in overlying relation to one another, a first top closure flap joined to one of said side panels and formed to provide an orifice-defining portion at one end thereof, a second top closure flap joined to the other side wall panel and disposed in overlying relation to said first top closure flap, and an end closure flap joined to said second top closure flap and disposed in overlying relation to the top portion of one of said end panels, said end closure flap and said second top closure flap being weakened along lines defining a continuous tear strip of which the portion formed from said second closure flap is of larger dimensions than, and disposed in registration with, the orifice-defining portion of said first top closure flap, said second top closure flap and said end closure flap being firmly adhered to the first top closure flap and said end panel, respectively, only over areas thereof exclusive of said tear strip, the tear strip portion of said end closure flap being less firmly and removably adhered to said end panel to enable the severance of said tear strip from said end closure flap and said second top closure flap to expose a pouring orifice for said carton.

2. The invention according to claim 1 wherein the top portion of said one end panel is formed with a tab partially severable therefrom to define a slot adapted to receive the tucked-in free end of said tear strip portion upon carton reclosure.

3. The invention according to claim 2 wherein the free end of said tear strip is formed with a converging taper and said slot is formed with a tapered edge cooperating with said free end to provide a tight fitting tuck for the free end of said tear strip.

4. The invention according to claim 1 wherein said end closure flap is partially cut away over an area adjacent the free end of said tear strip to enable the manual gripping of said free edge.

5. A carton for containing a dry free-flowing product and comprised of opposed side and end panels of semi-rigid packaging material secured together in a rectangular tubular construction, a bottom closure formed of side panel and end panel-joined flaps bent inwardly and secured in overlying relation to one another, a first top closure flap joined to one of said side panels and formed to provide an orifice-defining portion at one end thereof, a second top closure flap joined to the other side panel and disposed in overlying relation to said first top closure flap, and an end closure flap joined to said second top closure flap and disposed in overlying relation to the top portion of one of said end panels, said end closure flap

and said second closure flap being weakened along lines defining a continuous tear strip of which the portion formed from said second closure flap is of larger dimensions than, and disposed in registration with, the orifice-defining portion of said first top closure flap, said one end panel being cut away over a section of its top edge to define a product flow-concentrating spout in conjunction with said orifice-defining portion, said second top closure flap and said end closure flap being firmly adhered to the first top closure flap and said end panel, respectively, only over areas thereof exclusive of said tear strip, the tear strip portion of said end closure flap being less firmly and removably adhered to said end panel to enable the severance of said tear strip from said end closure flap and said top closure flap to provide a pouring orifice for said carton.

6. The invention according to claim 5 wherein the tear strip portion of said end closure flap covers the cut-away portion in the top edge of said one end panel.

7. The invention according to claim 1 wherein the tear strip portion of said second closure flap extends longitudinally at least the length of said orifice-defining portion of said first closure flap and extends laterally greater than the lateral dimensions of said orifice-defining portion.

8. The invention according to claim 7 wherein the weakened lines defining the tear strip portion of said second closure flap includes longitudinally extending tear lines terminating at a laterally extending fold line.

9. The invention according to claim 1 wherein said orifice-defining portion comprises a cut-away section of said first top closure flap.

10. The invention according to claim 1 wherein said orifice-defining portion comprises an area defined in part by weakened lines adapted to enable severance of said area from the remaining portion of said first top closure flap when said tear strip is actuated.

11. The invention according to claim 10 wherein the longitudinal lines defining said area of said first top closure flap comprise lines of severance and the laterally extending weakened line comprises a fold-inducing line.

12. The invention according to claim 11 wherein the tear strip portion of said second top closure flap is firmly adhered only to the orifice-defining portion of said first top closure flap.

13. A carton blank erectable into a carton for containing a dry-free-flowing product and comprised of a series of side panels and end panels of semirigid material and separated by fold lines, one of said side panels having joined thereto a glue flap adherable to another panel for securing said panels in a tubular construction upon the erection thereof, bottom closure flaps joined to the bottom edge of said side and end panels and adapted for providing a bottom closure upon erection of said carton blank, a first top closure flap joined to the top edge of one of said side panels and formed to provide an orifice-defining portion at one end thereof, a second top closure flap joined to the other of said side panels and adapted to be folded in overlying relation to said first top closure flap during the erection of said blank, and an end closure flap joined to said second top closure flap and adapted to be folded over into overlying relation to the top portion of one of said end panels, said end closure flap and said second top closure flap having weakened lines defining a continuous tear strip of which the portion formed from said second closure flap is of larger dimension than, and adapted to be disposed in registration with, said orifice-defining portion of said first top closure flap upon erection of said carton blank, said second top closure flap and said end closure flap being adapted for firm adherence to the first top closure flap and said one end panel, respectively, only over areas thereof exclusive of said tear strip.

14. The invention according to claim 13 wherein the top portion of said one end panel is formed with a tab

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severable from said panel portion to provide a slot for receiving the free end of said tear strip upon reclosure of the erected carton.

15. The invention according to claim 14 wherein the free end of said tear strip has a converging taper and said tab has an edge shaped to provide a tapered slot when said tab is severed from said end closure, said slot being adapted to provide a tight fitting tuck with the free tapered end of said tear strip upon reclosure of said carton.

16. The invention according to claim 13 wherein said end closure flap is partially cut away at an area adjacent the free edge of said tear strip to enable grasping of said free edge.

17. A carton blank erectable into a carton for containing a dry free-flowing product and comprised of a series of side panels and end panels of semirigid material and separated by fold lines, one of said side panels having joined thereto a glue flap adherable to the one of said end panels for securing said panels in a tubular construction upon the erection of said carton blank, bottom closure flaps joined to the bottom edge of said side and end panels and adapted to provide a bottom closure upon erection of said carton blank, a first top closure flap joined to the top edge of one of said side panels and formed to provide an orifice-defining portion at one end thereof, a second top closure flap joined to the top edge of the other of said side panels and adapted to be folded in overlying relation to said first top closure flap during the erection of said carton blank, and an end closure flap joined to said second top closure flap and adapted to be folded over into overlying relation to the top portion of one of said end panels, said one end panel being cut away along its top edge to define a product flow-concentrating spout in conjunction with said orifice-defining portion, said end closure flap and said second top closure flap having weakened lines defining a continuous tear

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strip of which the portion formed from said second closure flap is of larger dimensions than, and adapted to be disposed in registration with, said orifice-defining portion of said first top closure flap upon erection of said carton blank, said second top closure flap and said end closure flap being adapted for firm adherence to the first top closure flap and said one end panel, respectively, only over areas thereof exclusive of said tear strip.

18. The invention according to claim 17 wherein the cut-away portion in the top edge of said one end panel is disposed to be covered by the tear strip portion of said end closure flap upon the erection of said carton blank.

19. The invention according to claim 13 wherein said orifice-defining portion comprises a cut-away section of said first top closure flap.

20. The invention according to claim 13 wherein said orifice-defining portion comprises an area defined in part by weakened lines adapted to enable severance of said area from the remaining portion of said first top closure flap.

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JOSEPH R. LECLAIR, *Primary Examiner*.

GEORGE O. RALSTON, D. T. MOORHEAD,
Assistant Examiners.