# Jan. 26, 1965 P. C. COLLURA ETAL 3,167,240

REDUCEABLE CARTON WITH RECLOSURE FEATURE

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**United States Patent Office** 

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#### 3,167,240 REDUCEABLE CARTON WITH RECLOSURE FEATURE

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The present invention relates to folding cartons and 10 more particularly to cartons for retention of commodities, such as food, from which a portion of the contents may be removed and the size of the carton may easily be reduced and the carton thereafter effectively secured about the remainder of such contents. 15

An important object of the invention is to provide a carton which is of particular advantage for packaging frozen foods, such as peas in separable or fluent condition, to enable the user to reduce the carton size conveniently and reclose it after a portion of the contents 20 has been removed.

A further object of the invention is to provide an efficient construction of foldable carton which may be cut from a single blank of paperboard to form a tubular carton with end closures, there being formed fold lines 25 and tear lines in certain of the carton walls, whereby, after removal of a portion of the contents, a sizeable part of the carton may be torn or cut away, leaving usable closure parts by means of which the carton may easily be reclosed and the contents kept secure until such time 30 that it is desired to use the remainder.

A still further object of the invention is to provide a reduceable size carton of tubular construction, having edge walls and somewhat wider side walls, the carton being constructed so that one of the side walls constitutes a closure which may be opened to form a relatively wide opening for reception of the contents and, after such closure is secured, the carton may have its contents dispensed from one of its tubular ends, following which, 40 the carton size, the remaining unsevered parts of the carton serving as an effective closure for securely holding the remaining contents until needed.

A still further object of the invention is to incorporate effective partitioning means within a carton as above described so that one-half or any other desired proportion of the contents may be removed and the carton then reduced in size and reclosed.

Additional and more specific objects and advantages 50 of the present invention will become apparent as the description proceeds.

In the drawings:

FIGURE 1 is a perspective view of the carton in its set up and sealed condition;

FIGURE 2 is a perspective view of the carton in its reduced size with parts of the carton severed and removed and before securing the newly formed closure parts in position;

FIGURE 3 is a view of the portion of the carton that 60 has been removed from the altered carton illustrated in FIGURE 2;

FIGURE 4 is a perspective view of the altered carton with the newly formed closure parts in closed condition;

FIGURE 5 is a plan view of the form of blank from 65 which the carton may be made;

FIGURE 6 is a fragmentary perspective view of a modified form of carton which includes an integral partition, the original closure of the carton being shown partly broken away;

FIGURE 7 is a fragmentary plan view of the form of

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blank from which the modified form of carton may be made;

FIGURE 8 is a perspective view of another modified form of carton; and

FIGURE 9 is a plan view of the blank from which such carton may be produced.

In the distribution and sale of food products for home consumption, particularly frozen foods, it has been customary for some time to pack products in standard or uniform sized cartons holding approximately ten to twelve ounces. The amount contained in these packages is in many instances too large for small families and it frequently happens that persons preparing the food will decide to use approximately one-half the contents of the original package and leave the remainder in the carton for later use. In opening the carton to remove the contents, it is frequently torn and the portion of food left for future use is poorly or inadequately enclosed within the original carton. It is desirable, therefore, to provide an original carton of standard size capable of being readily opened for removal of about one-half the usual contents and, thereafter, readily convertible to a neat carton of smaller size which will retain the unused portion of the food for future use.

According to the present invention, a carton is provided that will originally hold the customary quantity of contents and which may easily be opened for removal of half the contents. The carton is originally formed with suitable lines of severance to provide for ready removal of an unneeded part of the carton walls and thus allow the remainder of the carton to be closed in a neat and effective manner to retain the part of the contents which are to be kept packaged for later use.

Referring particularly to the drawings, the carton, indicated as a whole at 1, is formed from relatively thin, foldable paperboard and may be made from a blank suitably cut and scored to provide a top wall or cover panel 2, bottom panel 3, edge wall panels 4 and 5, and securing flap 6, defined by fold lines 7, 8, 9 and 10 extending transversely of the blank. End closure flaps 12, 13 and 12a, 13a are formed on the ends of the respective panels 2 and 3 and small end closure flaps 14, 15 and 14a, 15a are formed on the ends of the respective panels 4 and 5. These flaps are foldable along score lines 16 and 16a extending lengthwise of the blank.

When the carton is to be set up for filling, the panels 4 and 5 are folded to upright position relative to panel 3, and to the respective flaps 13, 14 and 15; and 13a, 14a and 15a will be folded in overlapping relation. These flaps may be secured together in any desired manner. The top panel 2 may be left in the plane of the edge wall 4 until the carton has been filled, after which, panel 2 is folded down over the contents and the securing flap 6 is folded down to overlap the edge wall 5. For the purpose of attaching the flap 6 to wall 5 the flap may be formed with a locking tongue 17 with projecting portions 17a and 17b arranged to pass through a slit 18 formed in the edge wall 5.

For the purpose of enabling the carton to be reduced in size after removal of part of the contents, alternate closure parts are formed along laterally extending, severable lines, medially of the length of the carton. Referring to FIGURE 5, a weakened line of tear or severance is formed lengthwise of the blank to provide closure parts from portions of the walls 2, 3, 4 and 5, such closure parts being hinged along a fold line 19 extending lengthwise of the blank. As herein shown, a severance line, formed by a series of short cuts or slits slightly spaced apart, begins at the outer free edge of edge panel 5 and extends diagonally across panel 5, as indicated at

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20, to define a closure portion comprising two triangular shaped gusset folds 5a and 5b, defined from each other by fold line 5c.

Severance line 20 joins a second severance line 21 crossing panel 3 parallel with the fold line 19 to provide a 5 closure portion 3a from the panel 3.

Severance line 21 is joined by a third severance line 22 which extends diagonally across panel 4 similar to severance line 20 but back toward the fold line 19 to define a closure portion comprising two triangular shaped 10gusset folds 4a and 4b, defined from each other by a fold line 4c.

Severance line 22 is joined by a fourth severance line 23 extending across panel 2 to form a closure portion 2a from panel 2. This severance line is interrupted me-15dially of panel 2 to provide an engaging tab portion 2b, the severance line being extended around such tab, portion as indicated at 24. Cut line 23a separates panels 4aand 2a between the line of severance and the fold line 19. Severance line 23 preferably has an additional portion 20

23a extending angularly, as shown, to meet fold lines 10 and 19 at their point of intersection.

Finally, an additional severance line 6a extends across the securing flap 6, preferably as an extension of the fold line 19.

The various connected severance lines thus provide discardable portions 2d, 3d, 4d, 5d and 6d on the respective panels 2, 3, 4 and 5 and attaching flap 6. The closure flaps 12a, 13a, 14a and 15a attached to such respective discardable portions will, of course, likewise be discarded 30 upon severance of the carton along the severance lines.

With the discardable portion 2d removed from the portion 2a the tab 2b will be free to be inserted within a suitable cut or slit 3b formed in the panel 3a. This cut may be of generally U-shape, providing a deflectable portion  $_{35}$ 3c to facilitate insertion of the tab 2b within the opening.

By reference to FIGURES 2 and 3 it is apparent that after the discardable portion of the carton is removed, as shown in FIGURE 3, the newly conditioned closure 40 panels 2a and 3a may be overlapped and locked together and, at the same time, the two pairs of connected gussets 4a, 4b and 5a, 5b will be folded to lie beneath the closure panel 3a, as shown in FIGURE 4. In order to lock the closure panels 2a and 3a closed, the tab 2b is inserted 45 a series of severance lines is formed by spaced cuts bewithin the cut 3b. The newly formed carton of reduced size, containing the remaining portion of the contents of the original package, may then be returned to storage, such as in the freezing compartment of a home refrigerator. 50

As shown in the drawings, the panel 3a is made of such width that it may serve as the sole closure for the newly formed, reduced size carton. The function of the panel 2a may thus be simply that of a locking means for panel 3a.

In the modified form of the carton, illustrated in FIG-URES 6 and 7, the construction is substantially the same except for the addition of a strip to form a partition separating the carton in two substantially equal parts. The principal wall panels, indicated at 32 (shown partly broken 60 away), 33, 34 and 35, may be exactly like the respective panels 2, 3, 4 and 5; and the alternate closure portions are counterparts of those shown in the first form.

The partition comprises a main panel 55 of a length sufficient to extend across the carton between edge walls. 34 and 35. See FIGURE 6. At one end of panel 55 is a foldable extension panel 56 hinged along the score line 56a; and at the other end of panel 55 is a panel 57 hingedly connected along score line 57a, forming an extension of score line 39, equivalent to score line 19 of the first  $_{70}$  form of carton. The panel 55 is separated from panel 35 by a slit, and the panel 57 is likewise separated from panel portion 35a by a slit and from panel portion 35d by a fold line 57b.

and discard the panel portions 35d, 33d, 34d and 32d, the partition member, being integrally formed with panel portion 35d, will cling to this portion and be likewise removed and discarded. If desired, the panel portion 57 can be connected to panel portion 35d along a line of severance instead of the fold line 57b. In such case, the partition can be left in place and folded below the newly formed closure parts or can merely be torn from the panel portion 35d and separately discarded.

As shown in FIGURE 6, the carton is preferably set up for filling by leaving the panel 32 in the plane of edge panel 34. The contents may then be inserted on opposite sides of the partition panel 55. In order to hold the partition in the proper position a rigid tab 34a is formed in panel 34. By deflecting this tab slightly inwardly and inserting the edge of panel 56 between the tab and its panel 34 the panel 56 may be held with sufficient firmness to stay in place during filling of the carton.

After the carton has been filled, the panel 32 is swung down and secured as in the first described form.

By the use of the modified form which includes the partition the carton is well adapted for the packaging of foods that tend to pack in a solid block such, for example, as spinach and similar foods. By employing the partition the contents of the carton may readily be packed initially into two separate sections and the separation of one section from the other will present no particular problem.

In the modified form of carton, as shown in FIGURES 8 and 9, the carton may be produced in the form of a glued, collapsible tube comprising principal, relatively wide wall panels 61 and 62 and narrower edge wall panels 63 and 64, with an attaching panel 65 along the free edge of wide panel 61. These panels are defined from each other by fold lines 66, 67, 68 and 69.

The ends of the carton may be closed with end wall closure panels carrying tuck flaps. As shown, one end is closed by small edge wall flaps 71 and 72, carried on walls 63 and 64, over which is folded an end wall closure panel 73 carrying hinged tuck flap 74. At the other end there are provided edge wall flaps 75 and 76 which, when folded over, are enclosed by end wall panel 77 carrying hinged tuck flap 78.

In order to provide for reducing the size of the carton ginning with a severance line 81 across the attaching panel 65, then, along the fold line 66, is formed a severance line \$2, joined with severance line \$3 extending transversely of panel 61. Another severance line 84 is formed along fold line 67 symmetrical with severance line 82. Still another severance line 85 extends across narrow edge panel 63, wide panel 62 and narrow panel 64.

Aligned with severance lines 81 and 85 is a scored fold line 86 extending across panel 61. A second scored fold line 87 extends across the panel 61 at a distance from fold line 86 commensurate with the dimension of the carton between principal panels 61 and 62. The portion enclosed between these fold lines, indicated at 61a constitutes the closure for the reduced size carton. A second portion 61b, enclosed between fold line 87 and severance line 83 comprises a tuck flap.

When the carton is torn along the severance lines the parts indicated at 61c, 65a, 63a, 62a and 64a are separated from the original carton and discarded. After separation of these parts the tuck flap 61b and closure panel 61a are folded along their fold or hinge lines 87 and 86 so that the tuck flap 61b may be inserted within the shortened carton.

It is to be understood that references made herein to top and bottom wall panels, front and rear panels, edge panels and the principal panels are for convenience of description and such terms are not intended to be used in a limiting sense.

While the present description sets forth preferred forms By this construction, when it is desired to tear away 75 of the invention, various changes may be made in the

constructions disclosed without departing from the spirit of the invention, and it is therefore desired that the present disclosure be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the 5 scope of the invention.

We claim:

1. A reduceable size carton formed of a single blank of foldable paperboard, comprising:

- (a) first and second pairs of generally rectangular side 10walls hinged together to form a tubular structure open at the ends, the walls of the first pair having a transverse dimension greater than the walls of the second pair:
- (b) said tubular structure having an uninterrupted, cir- 15cumferential line of severence extending across each of said side walls operable upon severing the same to define two carton sections;
- (c) first closure flaps hinged to opposite end edges of the side walls for closing the remote ends of the 20 carton sections;
- (d) one of the carton sections having an uninterrupted, circumferential fold line extending across each of the side walls at an angle substantially normal to the longitudinal axis of the tubular structure, the 25 circumferential fold line being spaced longitudinally inwardly from the line of severence to define therebetween second closure flaps for closing the end of the one carton section adjacent the other carton section: 30
- (e) the second closure flaps including:
  - (i) an inner panel hinged along the fold line to one wall of the first pair of side walls and extending longitudinally of the structure from the fold line a distance substantially equal to the 35 width of the walls of the second pair so as to cover the open adjacent end of said one carton section:
  - (ii) opposed gusset panels hinged along the circumferential fold line to the second pair of 40
  - side walls and hinged also along a longitudinal fold line to the inner panel, and each having a fold line extending diagonally outward from the intersection of the circumferential and longitudinal fold lines, to divide the gusset panel 45 into substantially triangular portions;
  - (iii) an outer panel hinged along the circumferential fold line to the other wall of the first pair of side walls;
- (f) locking means including a complementary lock- 50
- ing tab and a receiving slot on the outer and inner panels, respectively, for maintaining the second closure flaps closed, the locking tab being formed on part of the line of severence;
- (g) a partition section hinged on a longitudinal fold 55 line to one of the side walls of the other carton section for closing the adjacent end of the other carton section and for dividing the tubular structure into separate carrying compartments; 60

(h) said partition section including:

- (i) a first panel hinged to the other carton section and folded in back-to-back relation with one of the side walls thereof;
- (ii) a second panel hinged to the first panel and folded to extend across the tubular structure 65 and being of such size to close the adjacent end of the other carton section:
- (iii) a third panel hinged to the second panel and folded to extend in back-to-back relation with 70a side wall:
- (i) means for securing the third panel to the adjacent side wall.

2. A reduceable size carton formed of a single blank of foldable paperboard, comprising:

(a) first and second pairs of generally rectangular side 75

walls hinged together to form a tubular structure open at the ends, the walls of the first pair having a transverse dimension greater than the walls of the second pair:

- (b) said tubular structure having an uninterrupted, circumferential line of severence extending across each of said side walls operable upon severing the same to define two carton sections;
- (c) first closure flaps hinged to opposite end edges of the side walls for closing the remote ends of the carton sections;
- (d) one of the carton sections having an uninterrupted, circumferential fold line extending across each of the side walls at an angle substantially normal to the longitudinal axis of the tubular structure, the circumferential fold line being spaced longitudinally inwardly from the line of severence to define therebetween second closure flaps for closing the end of the one carton section adjacent the other carton section;

(e) the second closure flaps including:

- (i) an inner panel hinged along the fold line to one wall of the first pair of side walls and extending longitudinally of the structure from the fold line a distance substantially equal to the width of the walls of the second pair so as to cover the open adjacent end of said one carton section:
- (ii) opposed gusset panels hinged along the circumferential fold line to the second pair of side walls and hinged also along a longitudinal fold line to the inner panel, and each having a fold line extending diagonally outward from the intersection of the circumferential and longitudinal fold lines, to divide the gusset panel into substantially triangular portions;
- (iii) an outer panel hinged along the circumferential fold line to the other wall of the first pair of side walls;

(f) locking means on the second closure flaps;

- (g) a partition section hinged on a longitudinal fold line to one of the side walls of the other carton section for closing the adjacent end of the other carton section and for dividing the tubular structure into separate carrying compartments;
- (h) said partition section including:
  - (i) a first panel hinged to the other carton section and folded in back-to-back relation with one of the side walls thereof;
  - (ii) a second panel hinged to the first panel and folded to extend across the tubular structure and being of such size to close the adjacent end of the other carton section;
  - (iii) a third panel hinged to the second panel and folded to extend in back-to-back relation with a side wall.
- 3. A reduceable size carton formed of a single blank of foldable paperboard, comprising:
  - (a) first and second pairs of generally rectangular side walls hinged together to form a tubular structure open at the ends, the walls of the first pair having a transverse dimension greater than the walls of the second pair;
  - (b) said tubular structure having an uninterrupted, circumferential line of severence extending across each of said side walls operable upon severing the same to define two carton sections;
  - (c) first closure flaps hinged to opposite end edges of the side walls for closing the remote ends of the carton sections;
  - (d) one of the carton sections having an uninterrupted, circumferential fold line extending across each of the side walls at an angle substantially normal to the longitudinal axis of the tubular structure, the circumferential fold line being spaced longitudinally

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inwardly from the line of severence to define therebetween second closure flaps for closing the end of the one carton section adjacent the other carton section;

- (e) the second closure flaps including:
  - (i) an inner panel hinged along the fold line to one wall of the first pair of side walls to cover the open adjacent end of said one carton section;
  - (ii) opposed gusset panels hinged along the cir- 10 cumferential fold line to the second pair of side walls and hinged also to the inner panel;
  - (iii) an outer panel hinged along the circumferential fold line to the other wall of the first pair of side walls; 15
- (f) locking means for the second closure flaps;
- (g) a partition section hinged on a longitudinal fold line to one of the side walls of the other carton section for closing the adjacent end of the other carton section and for dividing the tubular structure 20 foldable paperboard, comprising: into separate carrying compartments;
- (h) said partition section including:
  - (i) a first panel hinged to the other carton section; (ii) a second panel hinged to the first panel to
  - extend across the tubular structure and close the 25 adjacent end of the other carton section;
  - (iii) a third panel hinged to the second panel and secured to the adjacent carton section.
- 4. A reduceable size carton formed of a single blank of foldable paperboard, comprising:
  - (a) first and second pairs of generally rectangular side walls hinged together to form a tubular structure open at the ends;
  - (b) said tubular structure having an uninterrupted, circumferential line of severence extending across 35 each of said side walls operable upon severing the same to define two carton sections;
  - (c) first closure flaps hinged to opposite end edges of the side walls for closing the remote ends of the carton sections;
  - 40(d) one of the carton sections having an uninterrupted, circumferential fold line extending across each of the side walls at an angle substantially normal to the longitudinal axis of the tubular structure, the circumferential fold line being spaced longitudinally 45 inwardly from the line of severence to define therebetween second closure flaps for closing the end of the one carton section adjacent the other carton section;
  - (e) locking means for maintaining the second closure 50 flaps closed;
  - (f) a partition section hinged on a longitudinal fold. line to one of the side walls of the other carton section for closing the adjacent end of the other carton section and for dividing the tubular structure 55 into separate carrying compartments.
- 5. A reduceable size carton formed of a single blank of foldable paperboard, comprising:
  - (a) first and second pairs of generally rectangular side walls hinged together to form a tubular structure an open at the ends;
  - (b) said tubular structure having an uninterrupted, circumferential line of severence extending across each of said side walls operable upon severing the same to define two carton sections;
  - (c) one of the carton sections having an uninter- 65rupted, circumferential fold line extending across each of the side walls at an angle substantially normal to the longitudinal axis of the tubular structure, the circumferential fold line being spaced longitudinally inwardly from the line of severence to define there- 70 between closure flaps for closing the end of the one carton section adjacent the other carton section;
  - (d) the closure flaps including:
    - (i) an inner panel hinged along the fold line to one wall of the first pair of side walls;

- (ii) opposed gusset panels hinged along the circumferential fold line to the second pair of side walls and hinged also along longitudinal fold lines to the inner panel;
- (iii) an outer panel hinged along the circumferential fold line to the other wall of the first pair of side walls;
- (e) a partition section hinged to the other carton section for closing the adjacent end of the other carton section;
- (f) said partition section including:
  - (i) a first panel hinged to the other carton section and folded in back-to-back relation with one of the side walls thereof:
  - (ii) a second panel hinged to the first panel and folded to extend across the tubular structure to close the adjacent end of the other carton section.
- 6. A reduceable size carton formed of a single blank of
  - (a) generally rectangular side walls hinged together to form a tubular structure open at the ends;
  - (b) said tubular structure having an uninterrupted, circumferential line of severence extending across each of said side walls operable upon severing the same to define two carton sections;
  - (c) one of the carton sections having an uninterrupted, circumferential fold line extending across each of the side walls, the circumferential fold line being spaced longitudinally inwardly from the line of severence to define therebetween closure flaps for closing the end of the one carton section adjacent the other carton section;
  - (d) the closure flaps including:
    - (i) an inner panel hinged along the circum-ferential fold line to one of the side walls;
    - (ii) opposed gusset panels hinged along the circumferential fold line to the adjacent side walls and hinged also along different fold lines to the inner panel;
  - (e) a partition section hinged to the other carton section for closing the adjacent end of the other carton section;
  - (f) said partition section including:
    - (i) a first panel hinged to the other carton section; (ii) a second panel hinged to the first panel to extend across the tubular structure.
- 7. A reduceable size carton formed of a single blank of foldable paperboard, comprising:
  - (a) generally rectangular side walls hinged together to form a tubular structure open at the ends;
  - (b) said tubular structure having a line of severance extending across said side walls operable upon severing the same to define two carton sections;
  - (c) first closure flaps hinged to opposite end edges of the side walls for closing the remote ends of the carton sections:
  - (d) one of the carton sections having a fold line extending across each of the side walls to define inwardly from the line of severance closure flaps for closing the end of the one carton section adjacent the other carton section;
  - (e) a partition section hinged to the other carton section for closing the adjacent end of the other carton section:
  - (f) said partition section including:
    - (i) a first panel hinged on a longitudinal fold line to a side wall of the other carton section and folded in back-to-back relation with one of the side walls thereof;
    - (ii) a second panel hinged to the first panel and folded to extend across the tubular structure and being of such size to close the adjacent end of the other carton section;
    - (iii) a third panel hinged to the second panel and

folded to extend in back-to-back relation with a side wall;

- (g) means to secure the third panel to the last-mentioned side wall.
- 8. A reduceable size carton formed of a single blank 5 of foldable paperboard, comprising:
  - (a) side walls hinged together to form a tubular structure open at the ends;
  - (b) said tubular structure having an intermediate line of severance extending across each of said side walls 10 operable upon severing the same to define two carton sections;
  - (c) a partition section hinged to one of the side walls of the one carton section for closing the end of the carton section adjacent the line of severance; 15

(d) said partition section including:

- (i) a first panel hinged to the one carton section and folded in back-to-back relation with one of the side walls thereof;
- (ii) a second panel hinged to the first panel and 20 GEORGE O. RALSTON, Examiner. folded to extend across the tubular structure and

being of such size to close the adjacent end of the one carton section;

(iii) a third panel hinged to the second panel and folded to extend in back-to-back relation with a side wall of the one carton section and be secured thereto.

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