

Aug. 2, 1938.

D. LEVKOFF

2,125,730

COLLAPSIBLE EGG CARTON

Filed Sept. 9, 1937

3 Sheets-Sheet 1

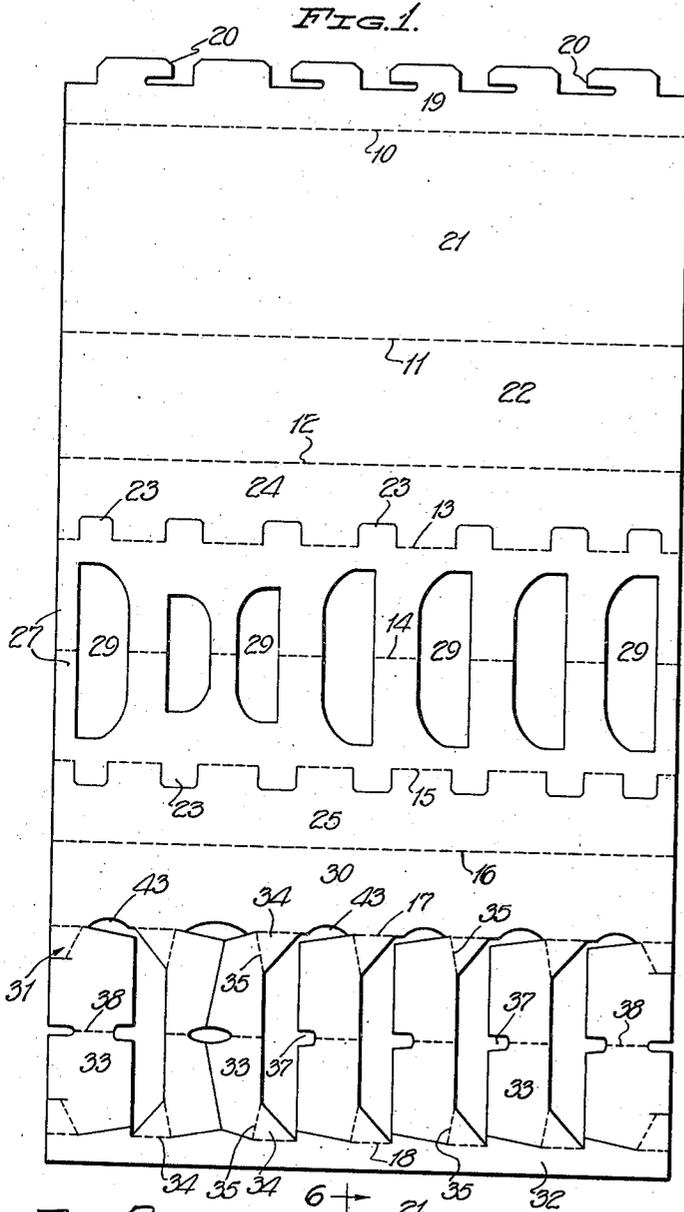


FIG. 1.

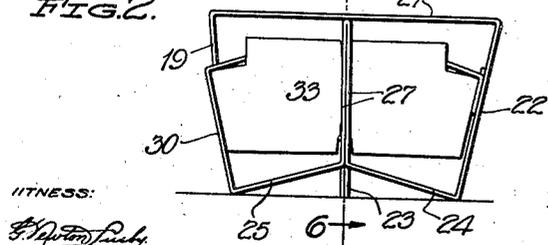


FIG. 2.

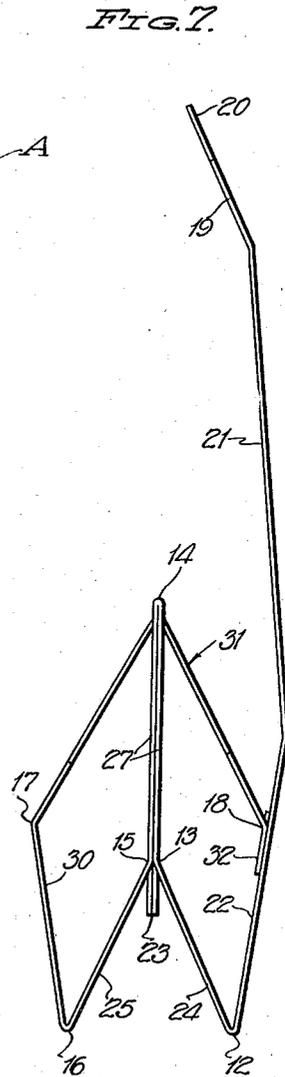


FIG. 7.

WITNESS:  
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FIG. 3.

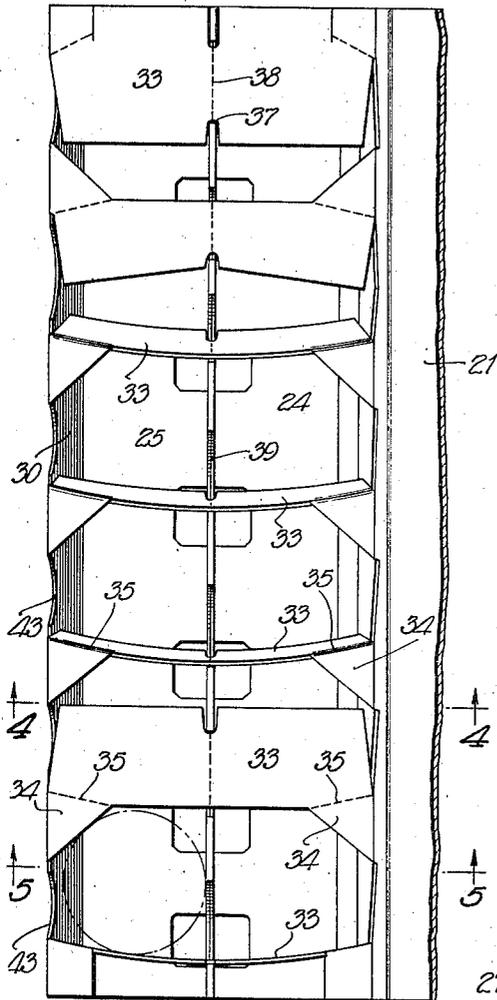


FIG. 4.

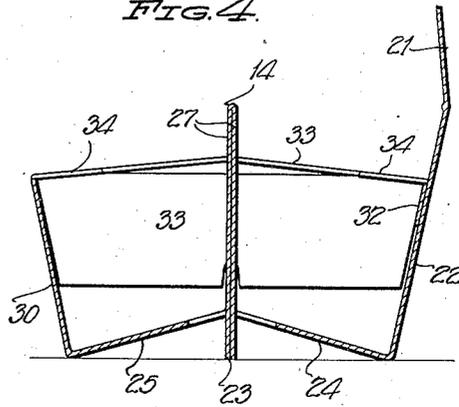


FIG. 5.

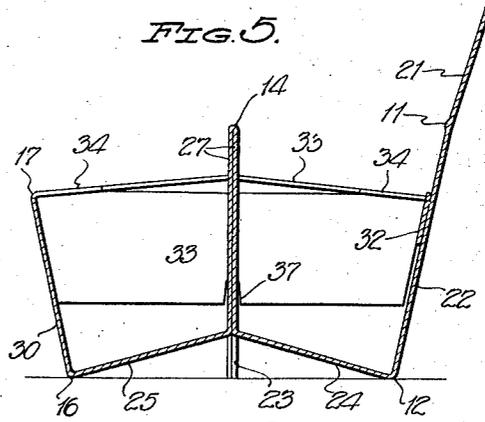
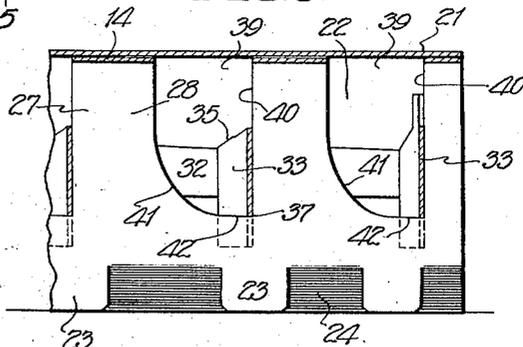


FIG. 6.



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FIG. 8.

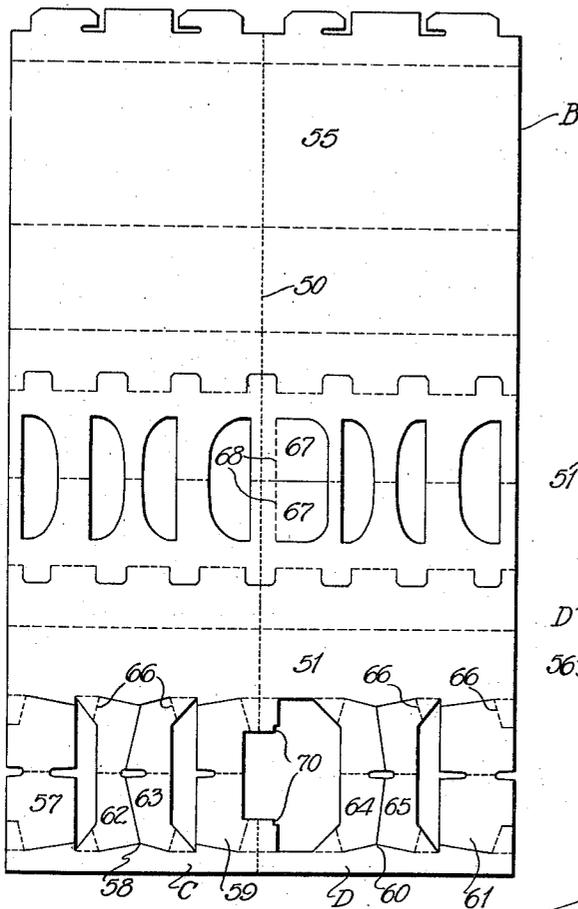


FIG. 9.

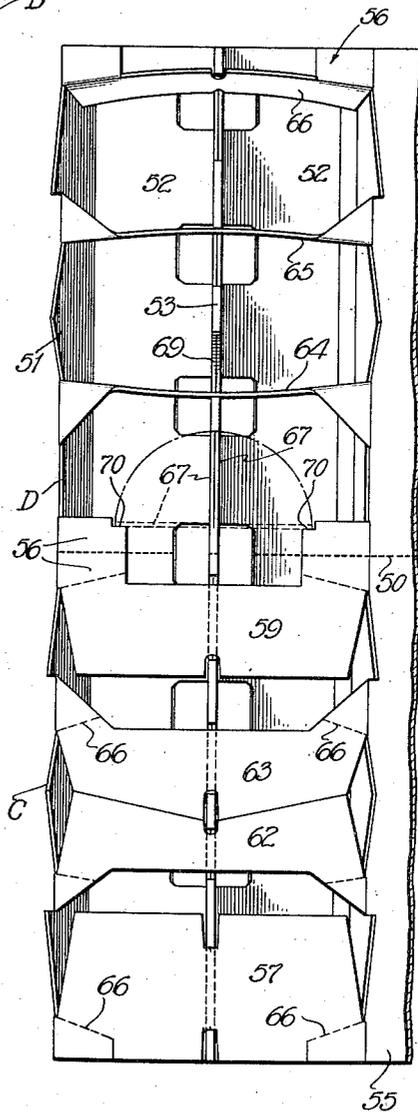
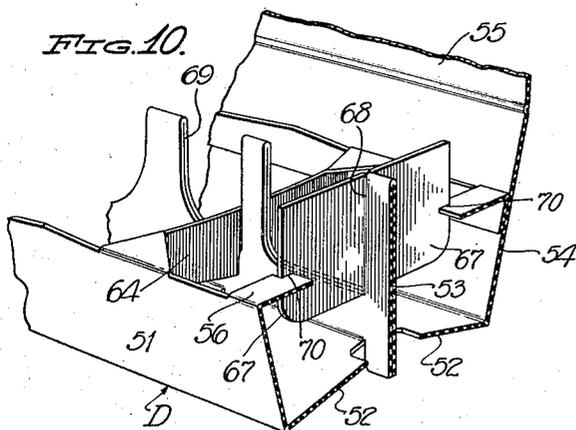


FIG. 10.



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# UNITED STATES PATENT OFFICE

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## COLLAPSIBLE EGG CARTON

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Application September 9, 1937, Serial No. 162,959

12 Claims. (Cl. 229—29)

This invention relates to improvements in folding egg cartons.

In folding egg cartons of the type having pivoted cross partitions which divide the body of the carton transversely into separate compartments, it has been the practice to construct the carton so that the cross partitions when folded inwardly or swung to partition forming position, assumed a straight position at right angle to the longitudinal side walls of the carton body. Whereas such straight cross partitions coact with the other walls of the carton to provide relatively safe nest compartments for eggs packed in the carton, I have found that if the cross partitions are formed in a manner to assume a transversely flexed bowed or concavo-convex position when folded or swung into partition forming position, they provide safer nest compartments for the reason that at least one wall of each compartment conforms substantially to the curvature of the surface of the eggs packed therein, while the opposite wall although convex acts as a cushion wall between adjacent compartments.

Another feature of the invention is the provision of a one-piece collapsible egg carton having non-interlocking pivoted cross partitions and wherein the flexed bowing of the cross partitions when swung to partition forming position tends to prevent any natural tendency or accidental return swinging movement of the cross partitions.

A further feature of the invention resides in a collapsible cellular cushion type egg carton which eliminates interlocking of partition walls when the carton is in set up position for use without sacrificing strength, cushioning qualities, and structural features which are required for the safe packing and transportation of eggs for retail sale.

A still further feature of the invention is the provision of a collapsible cellular egg carton formed from a single blank of cardboard, which may be broken in half when erected to form separate twin carton sections, one of the severed sections being a complete carton unit in itself, while one end of the other carton unit is closed by bending into position, transverse partitions formed from a portion of the double thickness longitudinal partition, to avoid the use of loose separate partitions and the expense of extra stock.

With these and other objects in view, the invention resides in the certain novel construction, combination and arrangement of parts, the essential features of which are hereinafter fully described in the following specification, are particularly pointed out in the appended claims, and

are illustrated in the accompanying drawings, in which:

Figure 1 is a plan view of the blank of material from which my improved collapsible egg carton is formed.

Figure 2 is an end elevational view of the carton in set up position with the cover closed.

Figure 3 is a top plan view of the set up carton with the cover open and partially broken away, certain of the cross partitions being turned in to partition forming position and others in horizontal position.

Figure 4 is a vertical transverse sectional view on the line 4—4 of Figure 3.

Figure 5 is a vertical transverse sectional view on the line 5—5 of Figure 3.

Figure 6 is a detail vertical longitudinal sectional view on the line 6—6 of Figure 2.

Figure 7 is an end elevational view of the carton in a partially collapsed position.

Figure 8 is a plan view of a blank showing a modified form of the invention.

Figure 9 is a top plan view of the set up modified carton with the cover broken away in section with certain of the cross partitions turned in and others in horizontal position.

Figure 10 is a fragmentary perspective view of one of the carton sections having the supplemental cross partitions.

Referring to the drawings by reference characters, the letter A designates the blank of material from which my improved collapsible egg carton is constructed. The material A is preferably stiff cardboard of the type customarily used in the construction of egg cartons, and the blank A shown in Figure 1 is of substantially rectangular configuration. The blank A is scored transversely from top to bottom on the predeterminedly spaced fold lines 10, 11, 12, 13, 14, 15, 16, 17, and 18.

The material beyond the score line 10 constitutes a cover lock flap 19, the free edge of which is provided with spaced locking tongues 20. The material between the score lines 10 and 11 constitutes a cover 21, while the score lines 11 and 12 divide the blank into a rear wall 22. The score lines 13 and 14 are broken score lines and connect with feet 23 which are cut from the material forming the bottom wall sections 24 and 25. The bottom wall section 24 is disposed between the score lines 12 and 13 whereas the bottom section 25 is disposed between the broken score line 15 and the continuous score line 16. The material between the score line 14 and the broken score lines 13 and 15 provides a pair of longitudinal partition walls 27—27. The longi-

itudinal partition walls 27—27 are provided with a series of spaced slots or cut outs 29 which extend equidistantly on opposite sides of the broken score line 14 to provide notches 39 in the top of the central longitudinal partition when the box is set up for use as will be hereinafter explained.

The unnotched portions of the longitudinal partition formed by the partition walls 27—27 fold flat against each other to provide spaced projections 25 along the top of the longitudinal partitions which are adapted to enter passages preferably in the form of slots in the transverse partitions about to be described during setting up or collapsing of the carton.

The material between the score lines 16 and the broken score line 17 constitutes a front wall 30 while the material between the broken score lines 17 and 18 constitutes a top wall 31, and the bottom edge of the blank below the broken score line 18 provides an attaching flap 32.

Cut from the top wall 31 is a plurality of cross or transverse partitions 33, all of which have their top corner edges connected to the front wall 30 and attaching flap 32 by triangular shaped webs 34. The cross partitions 33 are separated from the webs 34 by opposed inwardly converging fold or score lines 35 which enables the cross partitions to be swung inwardly of the carton body and assume a transversely bowed position in a manner to be presently explained.

The transverse partitions 33 are notched inwardly at their midportions from their inner sides to provide notches 37 to receive the central longitudinal partition when the cross partitions are folded inwardly of the carton to enable the cross partitions to straddle the longitudinal partition. Each of the cross partitions is foldable centrally and transversely upon the respective fold lines 37 and each line 38 extends from the inner end of the notch 37 to the top or head end of the cross partition. The unnotched midportions of the transverse partitions are in transverse alignment with the respective slots or cut outs 29 and are of a width greater than the width of the slots or cut outs so as to be freely received therein during the setting up of the carton.

The carton is initially set up to assume the position shown in the several views of the drawings, whereupon the longitudinal partition walls 27 are folded flat against each other on the fold line 14, and these two longitudinal partition walls are fixedly secured together by an adhesive to prevent outward spreading of the walls. After forming the central longitudinal partition, the bottom wall sections 24 and 25 are bent outwardly, after which the front and rear walls 30 and 22 are bent upwardly and the top section 31 is brought over the longitudinal partition and secured to the rear wall by means of the attaching flap 32, which flap may be stitched or adhesively secured to the rear wall 22. Thus it will be seen that by folding and securing the various walls in the manner described, that the body of the box will assume the position shown in Figures 4 and 5 of the drawings, wherein the bottom wall sections 24 and 25 extend upwardly and inwardly into meeting engagement from the rear and front walls respectively, and the front and rear walls extend upwardly and outwardly at a slight angle. The rear wall 22 is of a slightly greater height than the front wall and has the cover 21 hingedly connected thereto, whereby the cover may be swung over the box body and secured closed by engagement of the hooks 20 with the triangular shaped webs 34. When the box is initially set up

as shown in Figures 4 and 5, the legs 23 extend downwardly from the meeting edges of the bottom wall sections and provide a support for the central portion of the bottom wall. By folding the partition walls 27 flat against each other, and fixedly securing the same together, the cut outs 29 provide notches 39 in the top central longitudinal partition and the open mouths of the notches are of a width slightly greater than the unnotched folded midportions of the cross partitions and are disposed in alignment with the folded midportions of the respective cross partitions.

Each notch 39 is provided with a vertical wall 40, and the vertical walls 40 are disposed beyond the vertical plane of the pivotal axis of the cross partitions as best seen in Figure 6 of the drawings. Each notch 39 also includes a curved portion 41 to enable the partition to swing from a horizontal position to a substantially vertical position and the curved portion 41 merges into a straight portion or slightly upwardly inclined portion 42 with which the inner end of the slot 37 of each partition 33 frictionally engages when the cross partitions have been swung inwardly to their vertical partition forming position as seen in Figure 6 of the drawings.

After the carton has been initially assembled in the manner just previously described, and it is desired to divide the interior into two rows of compartments, the cross partitions 33 are folded inwardly on the converging fold lines 35 to assume a substantially vertical position. Due to the converging score lines 35 and the fact that the stop wall 40 of each notch 39 is beyond the plane of the vertical pivotal axis of the respective cross partitions, the said cross partitions will assume a transversely bowed or concavo-convex position as shown in Figure 3 of the drawings. The flexing of these partitions tends to prevent them from swinging upwardly although such tendency is also arrested by frictional engagement of the inner ends of the notches 37 with the bottom wall portions 42 of the notches 39.

By reason of the transversely bowed cross partitions, each egg compartment is provided with at least one curved wall substantially conforming to the curvature of an egg to be received therein and against which wall, the egg may rest. Even though the opposite wall of an egg compartment may be convex, it provides a cushioned wall between the adjacent compartments.

In the forming of the cross partitions 33, the width of the same may be slightly in excess of the distance between the front and rear wall and the opposite side edges of the said cross partitions may converge whereby the side or end edges of the cross partitions flatly engage the inclined front and rear walls when the cross partitions are in partition forming position.

To facilitate removal of eggs from the compartment in the front row, the front wall 30 may have its top edge cut away at the respective compartments as at 43 to enable the thumb of the finger to enter the carton and coact with the other fingers of the hand in the removal of the eggs in the respective compartments of the front row. The notches 39 in the central longitudinal partition serve the same purpose as the notches or cut away portions 43 in the front wall when access is desired to the carton for the removal of the eggs in the rear row of compartments.

In Figures 8 to 10 inclusive I have illustrated a modified form of my invention wherein the flexed bowed cross partition feature is embodied

in a cellular egg carton of the separable twin-section type. In such type cartons I provide a different arrangement of the hinged cross partitions, and form an auxiliary cross partition from the double ply longitudinal partition to close one of the ends of one of the carton sections after the carton unit has been broken in half to form the two separate sections.

This modified divisible carton is formed from a single blank B of cardboard cut and scored in a manner almost identical to the blank A. However, the blank B is provided with a weakened transverse tear line 50 which extends transversely through the front wall 51, cushion bottom wall sections 52—52, double longitudinal partition 53, rear wall 54, cover 55, and top wall 56 to divide the carton unit into separable carton sections C and D. The carton unit is of the six cell double row type and to divide the same transversely, there is provided five partition sections 57, 58, 59, 60, and 61. The end partitions 57 and 61 are identical and fold inwardly in opposite directions. The partition section 58 is cut and divided into two inwardly folding partitions 62 and 63, and the partition section 60 is similar thereto and is cut to provide inwardly folding partitions 64 and 65. The carton section C includes the cross partitions 57, 62, 63, and 59 while the carton section D includes cross partitions 64, 65, and 61, all of said partitions being folded on fold lines 66 similar to the fold lines 35 before referred to. When the carton is set up, the cross partitions just mentioned swing down into notches similar to notches 39 before described. This construction provides a six cell double row carton unit for accommodating one dozen eggs, and which carton unit may be broken on the weakened line 50 to effect a separation of the carton sections C and D when a half dozen eggs is desired by a purchaser, instead of a full dozen. However, the carton section C contains four cross partitions 57, 62, 63 and 59 which with the longitudinal partition 53 divides the section C into six cells, but carton section D is shown as containing but three cross partitions 64, 65, and 61. It is therefore necessary to provide an auxiliary end partition for the section D, to provide the necessary number of cross partitions for a six cell carton section. I provide this auxiliary cross partition by cutting two wing flaps 67—67 from the double thickness from which the central longitudinal partition 53 is constructed. The wing flaps 67 are cut from that portion of the longitudinal partition just inwardly of the line of severance 50 and are folded on the lines 68 to a position at right angle to the longitudinal partition as shown in Figure 10 and in dotted lines in Figure 9. The wing flaps 67 abut stop shoulders 69 forward in the top wall 56. Thus the wing flaps 67 which normally lie within the plane of the longitudinal partition 53, may be folded at right angle thereto to provide one of the end cross partitions for the carton section D.

While I have shown and described what I consider to be the most practical embodiment of my invention, I wish it to be understood that such changes and alterations as come within the scope of the appended claims may be resorted to if desired.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a cardboard egg carton having longitudinal side walls, a bottom wall, a top wall, cross partitions formed integral with said top

wall, inwardly converging fold lines extending from opposite sides of said top wall on which the respective cross partitions fold inwardly within said carton, said converging fold lines causing said cross partitions to assume transversely flexed bowed positions when folded into said carton.

2. In a cardboard egg carton having longitudinal side walls, a bottom wall, a top horizontal wall, cross partitions formed from said top wall and joined at their top corner edges to the side walls by integral corner webs, and inwardly converging fold lines between the corner top edges of said cross partitions and said corner webs whereby infolding of said cross partitions within said carton on said fold lines will cause said cross partitions to assume a transversely bowed partition forming position.

3. In a cardboard egg carton having longitudinal side walls, a bottom wall, a top horizontal wall, cross partitions formed from said top wall and joined at their top corner edges to the side walls by integral corner webs, and inwardly converging fold lines between the corner top edges of said cross partitions and said corner webs whereby infolding of said cross partitions within said carton on said fold lines will cause said cross partitions to assume a transversely folded partition forming position, and means formed integral with said carton in the path of inward folding movement of cross partitions for limiting such movement thereof.

4. In a collapsible egg carton having side walls, a bottom wall, a central longitudinal partition wall integral with said bottom wall and having slots therein opening at the top edge of said central longitudinal partition wall, cross partitions, connecting webs integral with the top corner edges of said cross partitions and connected to the side walls adjacent the top thereof, and inwardly converging pivot fold lines on each opposed pair of connecting webs whereby infolding of said cross partitions on said converging fold lines will cause said cross partitions to swing inwardly of the carton and assume a transversely bowed partition forming position, the inward folding movement of said cross partitions being limited by engagement of said cross partitions with one of the walls of the respective slots, said walls being disposed beyond the vertical plane of the pivotal axis of the respective cross partitions.

5. In a collapsible egg carton having side walls, a bottom wall, a central longitudinal partition wall integral with said bottom wall and having slots therein opening at the top edge of said central longitudinal partition wall, cross partitions, connecting webs integral with the top corner edges of said cross partitions and connected to the side walls adjacent the top thereof, and inwardly converging pivot fold lines on each opposed pair of connecting webs whereby infolding of said cross partitions on said converging fold lines will cause said cross partitions to swing inwardly of the carton and assume a transversely bowed partition forming position, the inward folding movement of said cross partitions being limited by engagement of said cross partitions with one of the walls of the respective slots, said walls being disposed beyond the vertical plane of the pivotal axis of the respective cross partitions, and frictional engaging means between said cross partitions and said central longitudinal partition wall to prevent accidental upward

swinging movement of said cross partitions when in bowed partition forming position.

6. A collapsible egg carton comprising side walls, a bottom wall hinged to said side walls and having a central longitudinal fold line, a longitudinal partition hinged to said bottom wall along its central fold line, cross partitions, webs integral with said cross partitions and connecting the top corners thereof to said side walls, inwardly converging fold lines dividing the connecting webs from each respective cross partition and providing a hinge upon which said cross partitions may be swung inwardly within a set up carton, a fold line extending transversely of said cross partitions along the midportions thereof to enable portions of said cross partitions which are disposed on opposite sides of the last mentioned fold lines to fold flat against the respective opposite sides of said central longitudinal partition when the carton is in collapsed position, said cross partitions each having a slot in its inner side edge in alignment with its central fold line, and notches provided in the top of said longitudinal partition being of a width greater than the length of the fold lines of said cross partitions to freely receive the midportions of said cross partitions when the side walls are spread apart to set up position whereby said cross partitions may be swung to a substantially vertical transversely bowed position crosswise of said longitudinal partition.

7. A collapsible egg carton as set forth in claim 6, in which the cross partitions frictionally engage the walls of the notches in said longitudinal partition to aid in retaining said cross partitions in bowed partition forming position.

8. A cellular egg carton having a top and bottom wall, said top wall being divided into a number of sections equal to one less than the number of cells comprising the carton, all but two of the sections being similar and folded towards the bottom wall, each to form one wall of the cells, said two sections each being cut in two and both portions of each of said two sections being folded toward the bottom wall in opposite directions to constitute two separate cell walls.

9. A collapsible egg carton comprising a single rectangular blank of cardboard cut, folded and set up to provide a carton having a front wall, a rear wall, a bottom wall, a double wall central longitudinal partition, a cover, and spaced cross partitions hinged to said front and rear walls, adjacent the top thereof; said blank of cardboard being weakened on a line midway of and for the length thereof, the weakened line extending on a plane between two adjacent central cross partitions to enable the breaking of the carton into two separate carton units along said weakened line, one of the central cross partitions constituting an end wall for one of the carton units, and a pair

of auxiliary partition flaps formed integral with the double wall central longitudinal partition of the other carton unit adjacent the severed end thereof and adapted to be swung outwardly from said central longitudinal partition to serve as an end cross partition.

10. A collapsible egg carton comprising a single rectangular blank of cardboard cut folded and set up to provide a carton having a front wall, a rear wall, a bottom wall, a double wall central longitudinal partition, a cover, and spaced cross partitions hinged to said front and rear walls adjacent the top thereof; said blank of cardboard being weakened on a line midway of and for the length thereof, the weakened line extending on a plane between two adjacent central cross partitions to enable the breaking of the carton into two separate carton units along said weakened line, one of the central cross partitions constituting an end wall for one of the carton units, and a pair of auxiliary partition flaps formed integral with the double wall central longitudinal partition of the other carton unit adjacent the severed end thereof and adapted to be swung outwardly from said central longitudinal partition to serve as an end cross partition, and inwardly projecting stop shoulders provided on the front and rear walls of said last mentioned carton unit in the path of outward movement of said partition flaps to limit outward swinging movement of the same.

11. In an egg carton having a front wall, a rear wall, a bottom wall, a double wall central longitudinal partition integral with said bottom wall, and spaced cross partitions hinged to the front and rear walls adjacent the top thereof, one end of the carton being closed by one of the end partitions and the other end of said carton being normally open, and a pair of partition flaps formed integral with the double wall longitudinal partition adjacent the open end thereof and being folded outwardly in opposite directions to extend transversely of the open end of the carton.

12. In an egg carton having a front wall, a rear wall, a bottom wall, a double wall central longitudinal partition integral with said bottom wall, and spaced cross partitions hinged to the front and rear walls adjacent the top thereof, one end of the carton being closed by one of the end partitions and the other end of said carton being normally open, and a pair of partition flaps formed integral with the double wall longitudinal partition adjacent the open end thereof and being folded outwardly in opposite directions to extend transversely of the open end of said carton, and stop shoulders carried by the front and rear walls of the carton and disposed in the path of outward folding movement of said partition flaps to limit such movement.

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