April 5, 1938. W. B. JONES 2,113,051

CELLULAR CARTON FOR EGGS AND THE LIKE

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Fig. 1

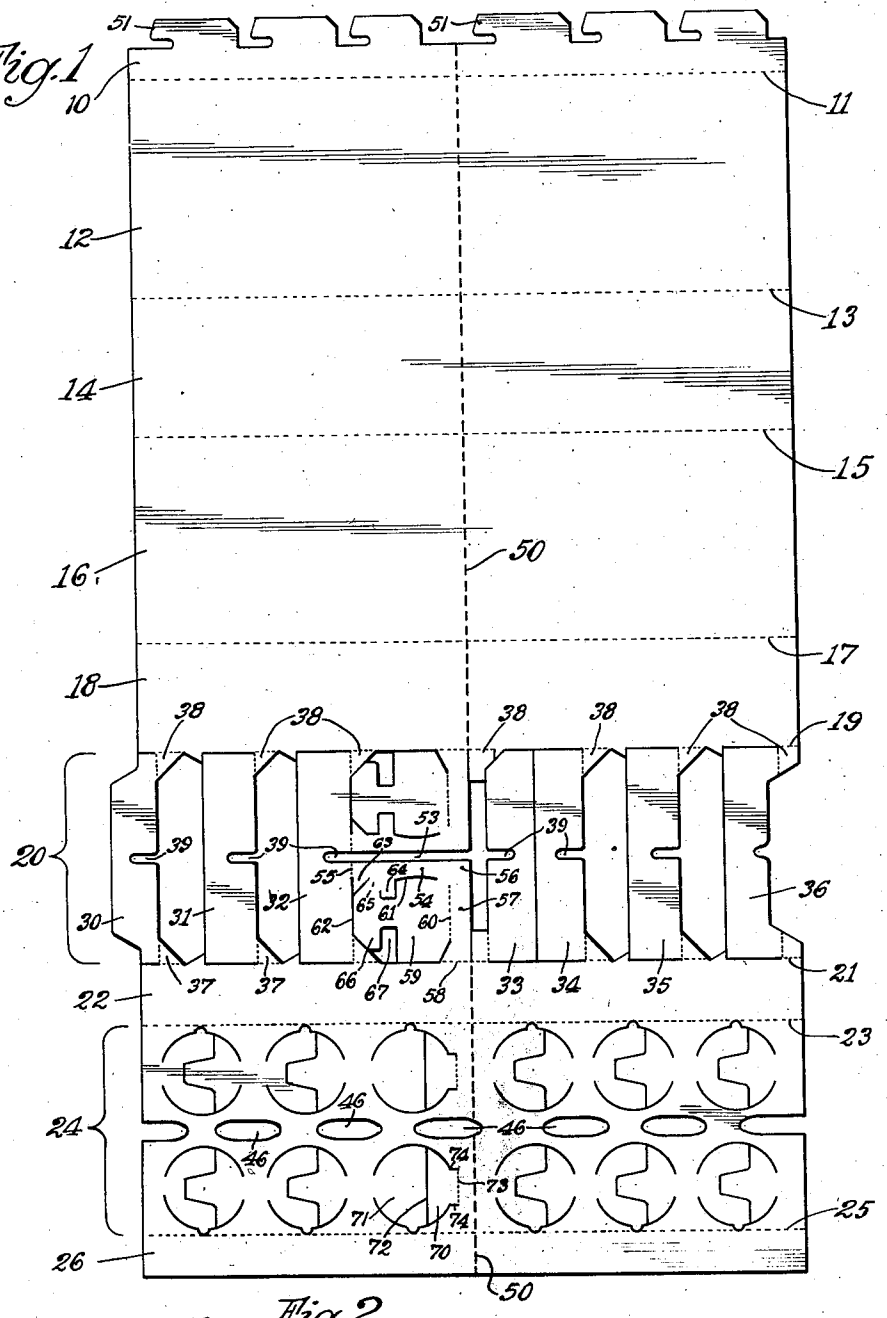
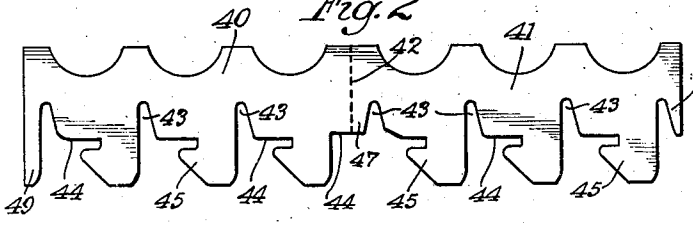


Fig. 2



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Fig. 3

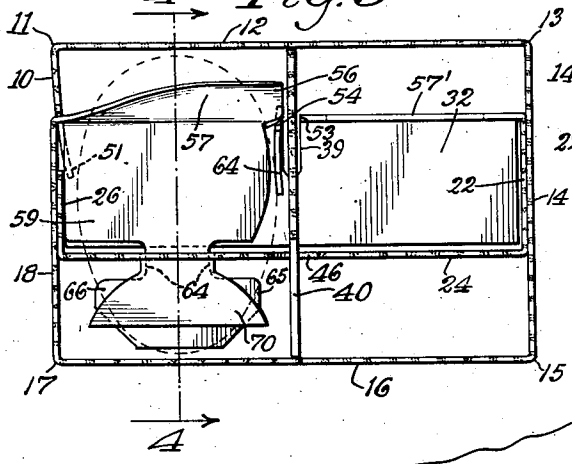


Fig. 4

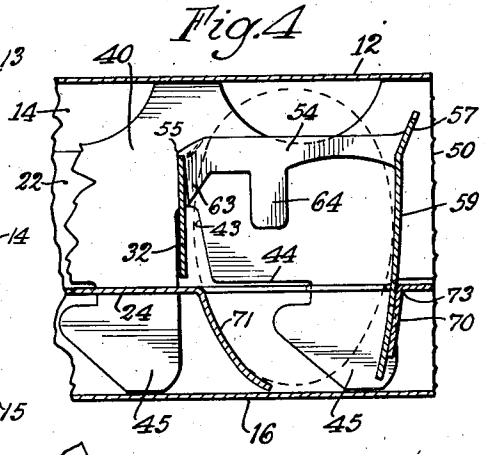
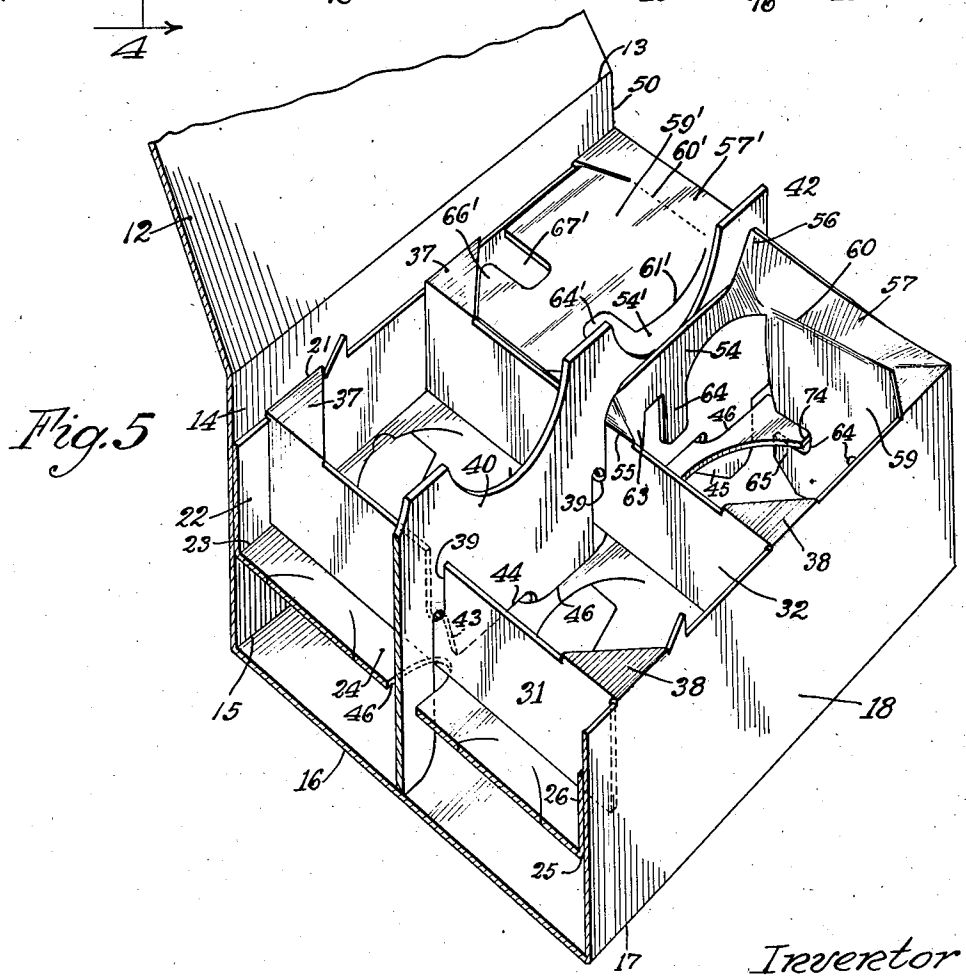


Fig. 5



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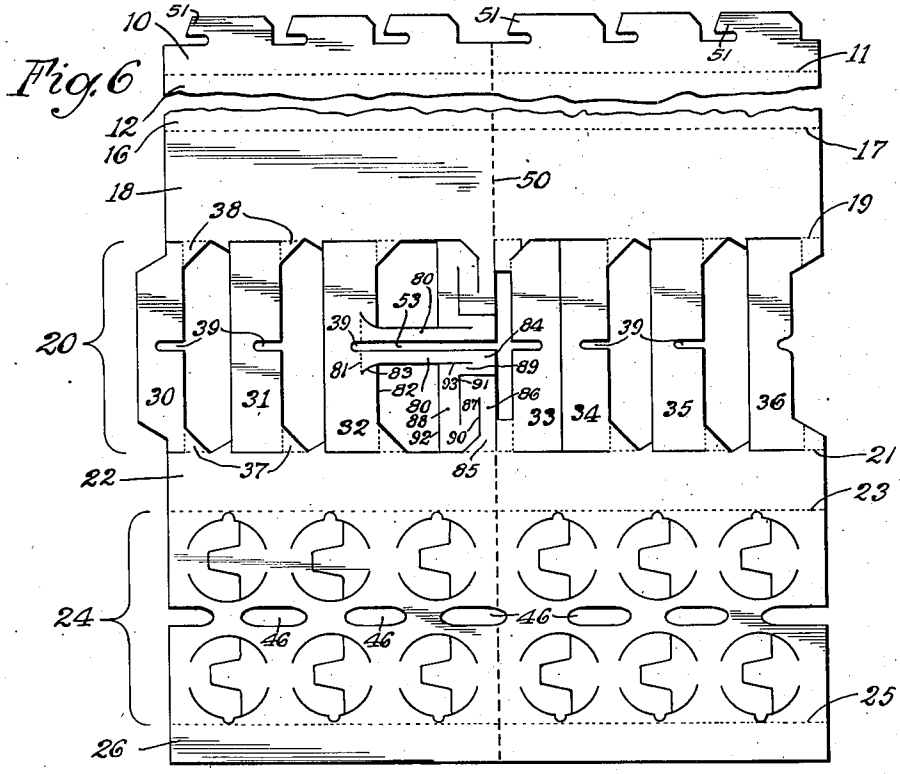
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CELLULAR CARTON FOR EGGS AND THE LIKE

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Fig. 6



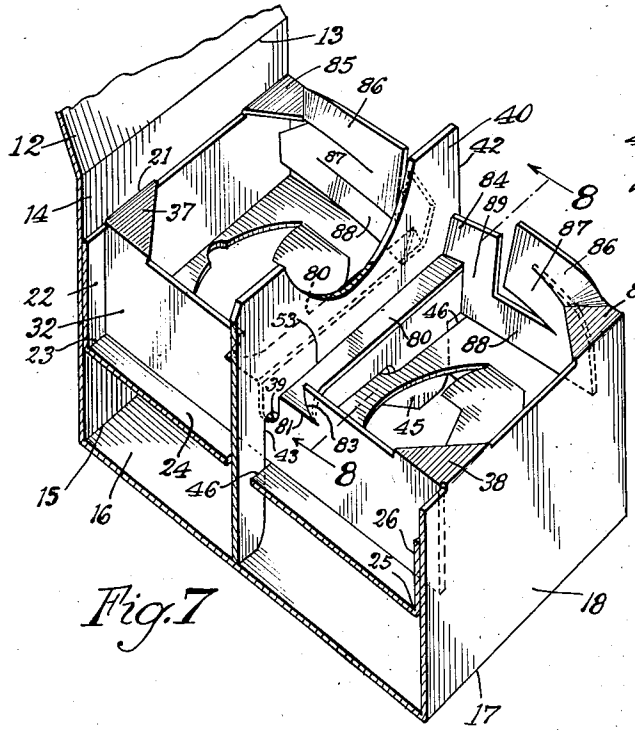
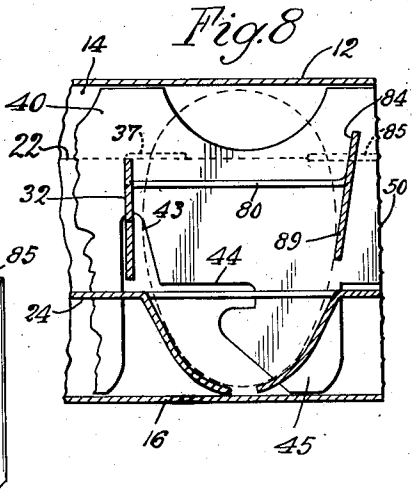


Fig. 7

Fig. 8



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UNITED STATES PATENT OFFICE

2,113,051

CELLULAR CARTON FOR EGGS AND THE LIKE

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Application November 18, 1936, Serial No. 111,406

14 Claims. (Cl. 229—29)

The present invention relates to egg cartons and to a particular construction therein for the end, or for the interior of divisible cartons where ends of two sections are formed upon division.

In the common 2 x 6 cell-sized egg cartons there is at the end, or at the divided end of sections, a transverse wall, which extends between the front and back carton sides to which the said wall is secured and by which it is carried. This wall supports the two end eggs, and without a middle support, the wall is subject to excessive pressure from the end eggs, which pressure tends to bow the wall outwardly. This effect is commonly prevented by an outside support carried on some longitudinal partition dividing the cells into two rows. These partitions have a projecting finger lying outside of the wall to support such wall centrally.

The structure above described necessitates using part of the length of the carton to provide enough space for an efficiently wide supporting finger. Many cartons are commonly non-divisible 2 x 6 cartons and standards of length have become established. There is a growing demand that such 2 x 6 cartons be capable of division into two 2 x 3 sections. Such sections also require support for any transverse wall at the severed end, and this has been provided by the customary finger on the longitudinal partition. To accomplish this, a portion of the normal carton length must be taken from the normal egg space, or else the box must be made longer to provide room for the two added fingers. If this is not done the length available for eggs is lessened, and the carton is useful only for the smaller-sized eggs.

These divisible egg cartons must provide separate longitudinal partitions, or but one, which is easily divisible into two longitudinal partitions. If the latter construction is used some force is exerted upon the single partition at the line of division when the carton is broken, and there is always the possibility that this force will break or weaken the two wall-supporting fingers. Some attempt has been made to provide two overlapping longitudinal partitions, one for each divided section, but in such case each partition projects from the divided end of the section, where it is exposed to danger of breaking off the wall-supporting post.

The present invention aims to overcome these disadvantages and to provide an end-lock for a carton end, or the divided end of a section, which will permit more efficient use of the length of the carton, and which will permit dispensing with a support at the center of one end or of both ends of a carton or divided section.

One object of the invention is to provide relatively independent end-locks for the two end eggs.

Another object is to provide such end-locks with a cushion structure or action to cushion the egg at the end of each row.

A particular object of the invention is to tie the end lock for each row back into the carton or section behind the egg which it cushions.

A further object of the invention is to provide duplicate end-locks for each row of a two-row carton or section, each end-lock being suspended to form a loop about an egg, which loop is tied at one end to a side of the carton or section, and at the other end to some interior part of the carton or section.

Various other and ancillary objects and advantages of the invention will be apparent from the following description and explanation of a carton which is shown as being of the divisible type, in which one of the sections is provided with the new structure of the present invention. It is to be understood that both ends of the 2 x 6 carton and the divided ends of the sections may be constructed accordingly, but present commercial forms and requirements may be satisfactorily met by using only one of the new structures at one of the divided ends. Such an exemplary embodiment of the invention is shown in the accompanying drawings in which:

Fig. 1 represents a blank for forming a divisible carton with structure to form egg cells.

Fig. 2 is a separate and divisible longitudinal partition dividing the egg cells into rows.

Fig. 3 is an end view of the far end of the carton section shown in Fig. 5.

Fig. 4 is a cross-section of the carton section of Fig. 3, taken on the line 4—4 thereof.

Fig. 5 is a perspective view of a portion of a carton section embodying the present invention looking down toward the corner of the loop with its parts in position for holding an egg, the egg being absent.

Fig. 6 is a fragment of a blank like that of Fig. 1 with a modified form of the invention.

Fig. 7 is a perspective view of a portion of a divided section having the modified structure of Fig. 6.

Fig. 8 is a cross-section of the carton of Fig. 7 taken on line 8—8 thereof.

The carton of the drawings is specially designed to facilitate the setting-up operation, wherein one divisible separate longitudinal parti-

tion is used as will be later explained. The box is provided with but one of the new structures. This is located on one side of the division line. A similar one is not made at the other side of the division line, for to do so would be to interfere with the desired operation of setting up the box quickly and efficiently. However, in a carton of different structural arrangement, there could be one new structure at each side of the division line and also at each end of the undivided carton without in any way departing from the spirit and scope of the invention.

In Fig. 1 there is shown a blank punched and scored for forming a carton in which the invention is embodied. The general construction and relation of the parts of the carton proper are old and are only briefly described in order to apply reference numerals thereto. Areas may be panels or walls and are represented by even numbers. Folding lines are represented by odd numbers. The areas are referred to as: locking flap 10, cover 12, rear longitudinal side wall 14, bottom 16, front longitudinal side wall 18, cross-wall-forming panel 20, attaching strip 22 which forms eventually a part rigid with rear side wall 14 and false-bottom suspension 26 which is eventually a part of the front wall 18. Intermediate these areas there are folding lines designated by odd numbers from 11 to 25 inclusive. The direction of fold appears clearly by reference to the various end views of carton or section. Supplementary parts and structure are also described.

The panel designated 20 is cut and scored to provide three down-foldable flaps in one section numbered 30, 31 and 32, and four down-foldable flaps in the other section numbered 33, 34, 35 and 36. All of these flaps turn down in the same direction except flap 33 which folds in the opposite direction so that the material from which it is formed is acquired from the stock on the same side of the contemplated division line. These flaps are suspended by and hinged on flat connecting tabs 37 at the rear and 38 at the front, which tabs remain in the original area of the panel 20. Each flap when folded down forms a transverse vertical cross-wall extending between front and rear side walls, and all seven of them define six spaces, suitable for eggs. Each flap is recessed at 39 to interlock with a longitudinal partition, such as shown in Fig. 2, which divides the carton into front and rear compartments.

The partition of Fig. 2 is generally of a common structure found in the prior art, and has two parts 40 and 41 connected by a perforated or weakened line of connection 42. It has recesses 43 to interlock with recesses 39 in the transverse walls 30 to 36. It also has flat recessed portions 44 from the bottom to overlie egg-rack 24, and hooked projections 45 to pass through holes 46 in the egg rack 24. The line of division 42 passes from top to bottom between flat edge 44 and the top of the partition and just slightly to one side of a recess 42 for the cross-wall 33. This forms a narrow supporting finger 47 for said cross-wall 43. There are similar fingers 48 and 49 at the ends of the longitudinal partition.

The carton is suitably weakened as by a perforated line 50 shown in Fig. 1, so that the carton when full of eggs, and locked by engagement of hooks 51 with tabs 38, may be divided into two complete sections. This division line 50 is located to overlie division line 42 in the longitudinal partition and to fall in the blank so that in dividing the carton, it leaves the transverse wall 33 at the end of one section and no corresponding cross-wall at the divided end of the opposite section. The complete section has fingers 47 and 48 at the ends, each of which takes away a portion of the length of the carton. The other section has finger 49 at one end, and no wall and no finger at the divided end. The present invention concerns structure to form an egg barrier for this open end, without taking away some of the length of the carton to do so, or without dependence upon a finger at the end of the longitudinal partition.

The form of the invention provided by the blank of Fig. 1 will be better understood by reference to Figs. 3, 4, and 5. The recess 39 of cross-wall 32 is continuous as recess 53 in the blank to the division line 50 to provide a receiving area for the longitudinal partition. A right angular loop of material is left in the blank at each row. This loop has one leg 54 lying along side and bounding recess 53, is tied at one end by connection on folding line 55 to the top edge of cross-wall flap 32, and is joined at the vertex 56 of the right angle with the other leg 57. The leg 57 of the loop is adjacent the division line 50, and is connected to the attaching strip 22 on folding line 58 which is a fractional part of the major folding line designated 21. Leg 57 carries on its side opposite division line 50 a wing 59 hinging on folding line 60. The wing lies between attaching strip 22 and leg 54 from which it is divided by cut line 61. The end of the wing is formed by cut line 62 which also defines the top edge of cross-wall 32. Cut line 62 extends to meet folding line 55 for leg 54, so as to form a tab 63 on leg 55. Line 61 is jagged to form a parallel projection 64 on leg 54, forming also a hook 65 on one side of wing 59. A corresponding hook 66 is formed on the other side by cutting recess 67 in the blank. The double hooked end of wing 59 is so formed that it lies below egg-rack 24 by passing through an egg hole therein with which it cooperates.

The egg hole referred to is shown in Fig. 1 as having two opposing tabs 70 and 71 meeting on line 72, and down-foldable to form a substantially circular egg hole. Tab 70 hinges on folding line 73 set back from the egg hole by short parallel cut lines 74. The hooked end of the wing 59 is forced by an egg into the egg hole and lies against folding line 73 with a hooking or interlocking relation under the false bottom. Other egg holes of prior art construction are present in the egg rack.

The action of the structure above described may be appreciated best by actual observation or by study of the illustrations, and less so by description. So illustrated, the drawings are described. In Fig. 5 the divided section is illustrated without eggs. The rear wing 59 is shown as it appears in the carton on setting up, and the parts are designated by the same numbers above described, with the addition of the prime designation. The parts lie flat in the plane of panel 20. Either by hand, or automatically by inserting an egg, the parts assume twisted folded and warped positions to define an egg cell which also has resiliency like a cushion. Each of the legs 54 and 57 twist to lie almost vertical at the vertex 56, which is lifted and points upwardly. The projection 64 provides a lever upon which the egg pushes to aid in turning or twisting leg 54. Little projection 63 also turns downwardly. The wing 59 locks to the egg rack and provides a

vertical barrier with a resilient tie back into the egg carton, where it is anchored to cross wall **32**.

The cushioning action is best explained by reference to Fig. 4. The cross-wall **32** in Fig. 4 is immovable to the left by reason of contact with longitudinal partition **40**. However, it is movable to the right, either by pull thereon from loop legs **54**, or by push thereon by eggs. By reason of this freedom, and a like freedom in the cross-wall **31**, the presence of large eggs will readily permit the cell-forming structure to expand toward the division line **50**, either in a carton, or in a divided section. Also any force or pressure, as in the act of dividing the carton, will be taken up by the resilience of the structure. The bowing of cross-wall **32** in this action pulls the longitudinal sides together with a resilient pull, and the warped or twisted form of the loop legs, adds further resiliency. Should the leg **54** or the cross-wall **32** become broken, the locking of wing **59** to the egg-rack will prevent leg **57** opening outwardly to release the eggs. Figs. 3 and 4 show the positions of the parts where the bulge of the egg is greatest.

The loop structure may be made in various ways and is not limited to that shown in Fig. 1. Various modifications are shown combined in the form of Fig. 6. First looking at the form of Fig. 1, any of the legs such as leg **54** may be made longer than shown by the simple expedient of extending its line of connection in the blank, as to cross-wall **32**, deeper. The leg **57** may be made more resilient by giving it a non-continuous structure from end to end.

In Fig. 6 the blank is designated by the same numerals as used in Fig. 1, where the parts are identical.

The modified structure has two legs **80** along side recess **53**. Leg **80** is tied to cross-wall **32** at a line **81** inside the top edge **82** of cross-wall **32**. The leg flares to a greater width as it enters the cross-wall to assure strength in the connection, as provided for by curved cut line **83**. The loop has vertex **84** at its junction with division line **50**. The remaining leg of the loop extends with continuity of material in a circuitous route from the vertex **84** to its attachment at **85** on a side wall of the carton. The part corresponding to the wing **59** of Fig. 1 here is merged with the leg, but it preserves its wing function. Together there are three parallel strips **86**, **87** and **88**, and a right angular strip **89** all separated or defined by cuts numbered **90**, **91**, **92**, and **93**, yet all arranged continuously in the order **85**, **86**, **87**, **88**, **89**, **84**, **80** and **81**. This series defines the loop. If desired a hooked wing may be provided on the part **88** corresponding to structure for a locking relation to an egg-hole, as in Fig. 1.

The parts above described assume the positions shown in Figs. 7 and 8 when an egg is held by them. The vertical portion of this barrier has additional resiliency where the bulge of the egg contacts it, and this resiliency is in addition to that which it acquires through the pull of leg **80** on cross-wall **32**.

As stated in the beginning the loop structure is not limited to use in one section, nor to the middle of a divisible carton. A non-divisible carton could have similar structure if desired, and a divisible carton could provide sections having each end with such loop retaining end-locks or cushions. Only one position is here shown in order to provide a 2 x 6 carton which can be set up and used as follows: The carton blanks shown are folded and glued, to provide a flat form known to the art, with which the separate divider board of Fig. 2 is supplied. The folded form is opened to rectangular tubular form in which the panel **20** contains all its parts in the planar positions as originally formed, and as shown in Fig. 1. Imagine that the panel **20** of Fig. 1 is a view of the top interior of the squared box, the cover **12** being open and folded back or extending parallel with rear longitudinal side **14**. Divider board **40—41** is held in one hand and the squared box in the other. Upon hooking finger **48** under cross-flap **36** with the lengths of the box and the divider board at an acute angle, the divider board can be moved to close the angle. In so doing the projections **45** fold down all the flaps. The divider board is moved lengthwise of the box to cause projections **45** to slip into holes **46** and to hook under the egg-rack panel **24**. All the cells are thus formed and all are accessible except those where the loop ties are located. The structure is such that merely inserting an egg causes the parts to move to proper place as illustrated.

Although the invention has been illustrated in the type of egg carton which has a false bottom or egg rack therein, it is to be observed that it is applicable to other types of egg cartons, including those which have no egg-rack or false bottom, and which in consequence have deeper or wider cross-walls. The invention is particularly useful in the egg-rack type for it may provide for connection of the loop structure to the egg-rack as in Fig. 1. It may be used without connection to the egg-rack as shown in Fig. 6, and hence the egg-rack is not an essential element of the egg carton in which the invention may be embodied. Various structures and embodiments thereof are contemplated in the accompanying claims.

I claim:

1. A carton for eggs and the like having walls forming a cover, a bottom, two longitudinal sides, and a panel intermediate the cover and bottom extending from one longitudinal side wall to the other, said panel being cut to form a flap foldable down into the box to provide a transverse partition therein extending from side to side, said partition being located inwardly from at least one end of the carton, and also being cut to provide a looped connection having one end secured to the side of the carton remote from the flap and the other end secured to said flap intermediate the ends of said flap, whereby said loop, said flap, and the side of the carton define a cell therein.

2. A carton for eggs and the like having walls forming a cover, a bottom, two longitudinal sides, and a panel intermediate the cover and bottom extending from one longitudinal side wall to the other, said panel being cut to form a flap foldable down into the box to provide a transverse partition therein extending from side to side, said partition being located inwardly from at least one end of the carton, and also being cut to provide a looped connection having one end secured to the side of the carton remote from the flap and the other end secured to said flap intermediate the ends of said flap, a portion of the loop carrying a wing taken from the area of the panel between the loop and flap, whereby said winged loop, said flap and the side of the carton define a cell therein.

3. A carton for eggs and the like having walls forming a cover, a bottom, two longitudinal sides, and a panel intermediate the cover and bottom extending from one longitudinal side wall to the

other, said panel being cut to form a flap foldable down into the box to provide a transverse partition therein extending from side to side, said partition being located inwardly from at least one end of the carton, and also being cut to provide two looped connections, each having one end secured to different longitudinal sides of the carton, and having the other end secured to one side of the center of said flap, said looped connections being separate for the receipt between them of a portion of a longitudinal partition for the carton, whereby said partition, and each loop with its connected side of the carton, and said flap, define a cell on each side of the middle of the carton.

4. A carton for eggs and the like having walls forming a cover, a bottom, two longitudinal sides, and a panel intermediate the cover and bottom extending from one longitudinal side wall to the other, said panel being cut to form a flap foldable down into the box to provide a transverse partition therein extending from side to side, said partition being located inwardly from at least one end of the carton, and also being cut to provide two adjacent and separated right-angular-shaped connections with one leg secured to a side of the carton, and the other leg secured to said flap intermediate its ends, said carton side, said connection and said flap defining a cell in the carton.

5. A carton for eggs and the like having walls forming a cover, a bottom, two longitudinal sides, and a panel intermediate the cover and bottom extending from one longitudinal side wall to the other, said panel being cut to form a flap foldable down into the box to provide a transverse partition therein extending from side to side, said partition being located inwardly from at least one end of the carton, and also being cut to provide two adjacent and separated right-angular-shaped connections with one leg secured to a side of the carton, and the other leg secured to said flap intermediate its ends, said panel being further cut to provide one leg of said connection with a portion foldable down to a position substantially parallel with said flap, whereby said side wall, said connection and said flap define a cell in the carton.

6. A carton for eggs and the like having walls forming a cover, a bottom, two longitudinal sides, and a panel intermediate the cover and bottom extending from one longitudinal side wall to the other, said panel being cut to form a flap foldable down into the box to provide a transverse partition therein extending from side to side, said partition being located inwardly from at least one end of the carton, and also being cut to provide two adjacent and separated right-angular-shaped connections with one leg secured to a side of the carton, and the other leg secured to said flap intermediate its ends, said leg which is attached to the side wall extending continuously but circuitously from end to end by irregular formation whereby it is resilient and stretchable, said connection, its carton side and said flap defining a cell in the carton.

7. A carton for eggs and the like having walls forming a cover, a bottom, two longitudinal sides, and a panel intermediate the cover and bottom extending from one longitudinal side wall to the other, said panel being cut to form a flap foldable down into the box to provide a transverse partition therein extending from side to side, said partition being located inwardly from at least one end of the carton, a longitudinal partition to divide the carton into front and rear compartments, and means cut from said panel forming a loop in each compartment extending from a side of the carton at a point remote from the flap to said flap at a point remote from the side of the carton.

8. A carton for eggs and the like having walls forming a cover, a bottom, two longitudinal sides, and a panel intermediate the cover and bottom extending from one longitudinal side wall to the other, said panel being cut to form a flap foldable down into the box to provide a transverse partition therein extending from side to side, said partition being located inwardly from at least one end of the carton, a longitudinal partition to divide the carton into front and rear compartments, and means cut from said panel forming a loop in each compartment extending from a side of the carton at a point remote from the flap to said flap at a point remote from the side of the carton, the portion of the loop near the carton side carrying material from the panel which material is movable into a position substantially parallel to said flap.

9. A carton for eggs and the like having walls forming a cover, a bottom, two longitudinal sides, an egg-rack spaced above the bottom, and a panel intermediate the cover and egg-rack extending from one longitudinal side to the other, said panel being cut to form a flap foldable down into the box to provide a transverse partition therein, said partition being located inwardly from at least one end of the carton, and being further cut to provide a loop of material connected at one end to a carton side remote from the flap and at the other end to the flap remote from the carton side, and being further cut to provide a wing attached to said loop, said wing being movable into position substantially parallel to said flap to close an area beneath said loop and above the egg rack.

10. A carton for eggs and the like having walls forming a cover, a bottom, two longitudinal sides, an egg-rack spaced above the bottom, and a panel intermediate the cover and egg-rack extending from one longitudinal side to the other, said panel being cut to form a flap foldable down into the box to provide a transverse partition therein, said partition being located inwardly from at least one end of the carton, and being further cut to provide a loop of material connected at one end to to a carton side remote from the flap and at the other end to the flap remote from the carton side, and being further cut to provide a hooked wing attached to said loop, said wing being long and movable into position to have its hooked portion engage beneath the egg-rack.

11. A transversely divisible carton for eggs and the like having walls forming a cover, a bottom, two longitudinal side walls, and a panel intermediate the cover and bottom and extending from one longitudinal side wall to the other, said walls of the carton being weakened along a transverse division line for breaking the carton into two sections, said panel on one side of the division line being cut to provide a flap for folding down to provide a transverse vertical partition from one side wall to the other at a location remote from the line of division, said panel having its area between said flap and said line of division cut to provide two independent loops of material, each having one leg connected to a side wall and extending along the line of division to near the transverse center of the carton and there connected with another leg extending adjacent the longitudinal center of the carton to the said flap, whereby upon division of the carton said section is

provided with independent loops as egg-barriers at the severed end of the section.

12. A transversely divisible carton for eggs and the like having walls forming a cover, a bottom, two longitudinal side walls, and a panel intermediate the cover and bottom and extending from one longitudinal side wall to the other, said walls of the carton being weakened along a transverse division line for breaking the carton into two sections, said panel on one side of the division line being cut to provide a flap for folding down to provide a transverse vertical partition from one side wall to the other at a location remote from the line of division, said panel having its area between said flap and said line of division cut to provide two independent loops of material, each having one leg connected to a side wall and extending along the line of division to near the transverse center of the carton and there connected with another leg extending adjacent the longitudinal center of the carton to the said flap, the leg along said line of division carrying material derived from the area of the panel within the loop, said material being movable into position substantially parallel with said flap, whereby upon division of the carton said section is provided with two independent end retainers at the severed end of the section.

13. A transversely divisible carton for eggs and the like having walls forming a cover, a bottom, two longitudinal side walls, and a panel intermediate the cover and bottom and extending from one longitudinal side wall to the other, said walls of the carton being weakened along a transverse division line for breaking the carton into two sections, said panel on one side of the division line being cut to provide a flap for folding down to provide a transverse vertical partition from one side wall to the other at a location remote from the line of division, said panel having its area between said flap and said line of division cut to provide two independent loops of material, each having one leg connected to a side wall and extending along the line of division to near the transverse center of the carton and there connected with another leg extending adjacent the longitudinal center of the carton to the said flap, the leg along said line of division carrying material derived from the area of the panel within the loop, said material being movable into position substantially parallel with said flap and being adapted to engage with a portion of the carton beneath said loop, whereby upon division of the carton said section is provided with two independent end retainers at the severed end of the section.

14. A transversely divisible carton for eggs and the like having walls forming a cover, a bottom, two longitudinal side walls, and a panel intermediate the cover and bottom and extending from one longitudinal side wall to the other, said walls of the carton being weakened along a transverse division line for breaking the carton into two sections, said panel on one side of the division line being cut to provide a flap for folding down to provide a transverse vertical partition from one side wall to the other at a location remote from the line of division, said panel having its area between said flap and said line of division cut to provide two independent loops of material, each having one leg connected to a side wall and extending along the line of division to near the transverse center of the carton and there connected with another leg extending adjacent the longitudinal center of the carton to the said flap, the leg along said line of division carrying material derived from the area of the panel within the loop, said material being movable into position substantially parallel with said flap and having a hooked end at its lower portion, and an egg-rack in said carton with which said hooked end is cooperative to lock the wing thereto in one direction, whereby upon division of the carton said section is provided with two independent end retainers at the severed end of the section.

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