

June 10, 1952

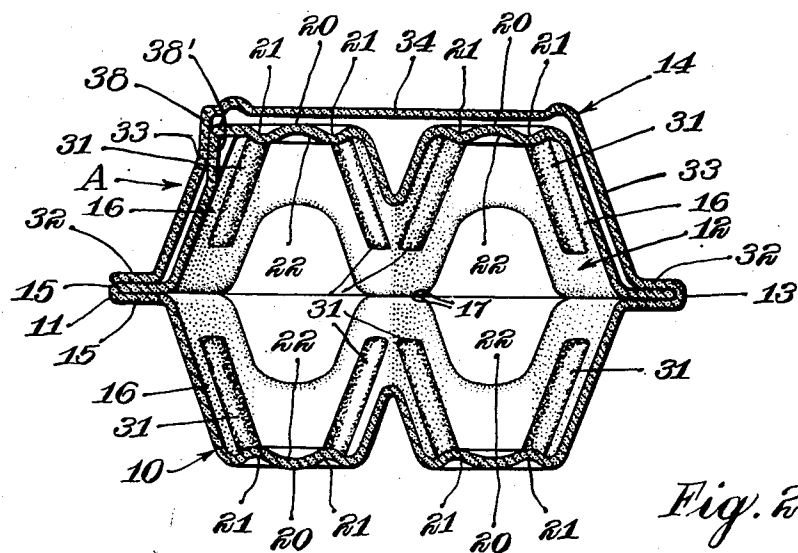
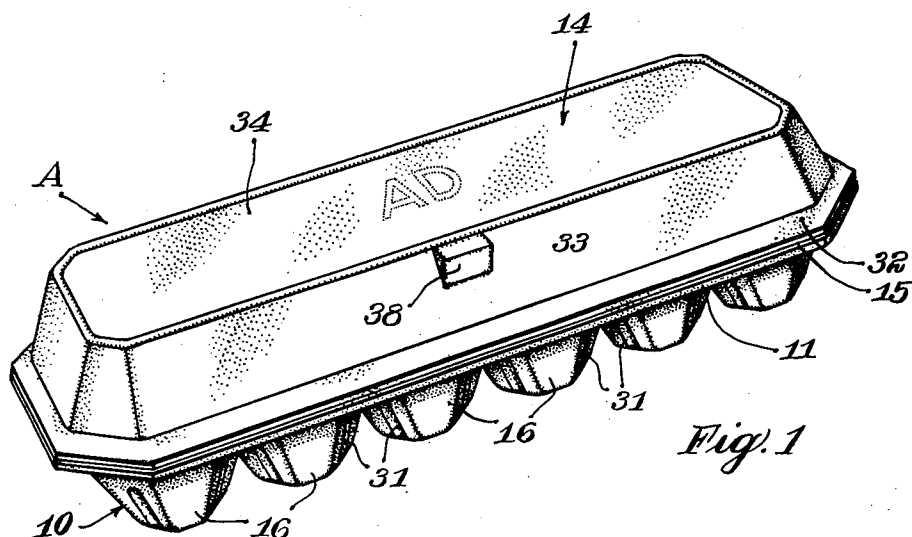
R. M. SCHILLING

2,600,130

EGG CARTON

Filed Dec. 3, 1945

6 Sheets-Sheet 1



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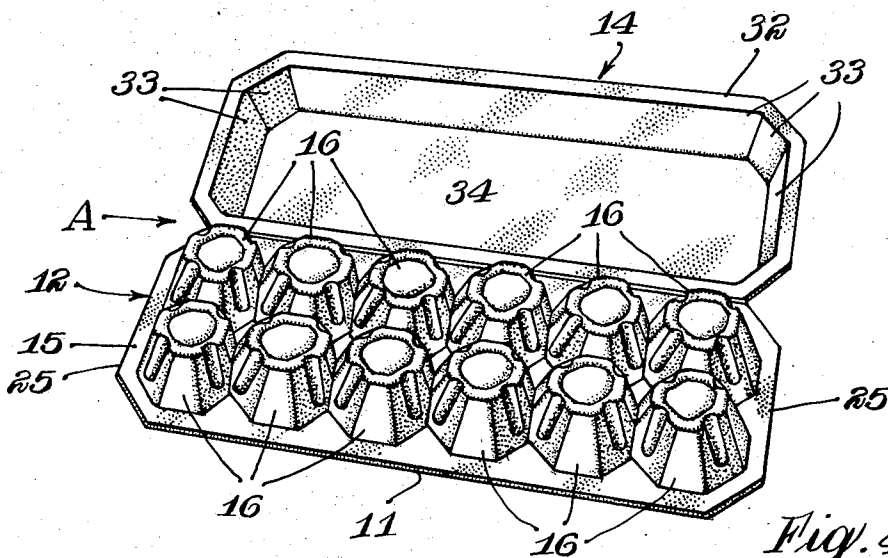
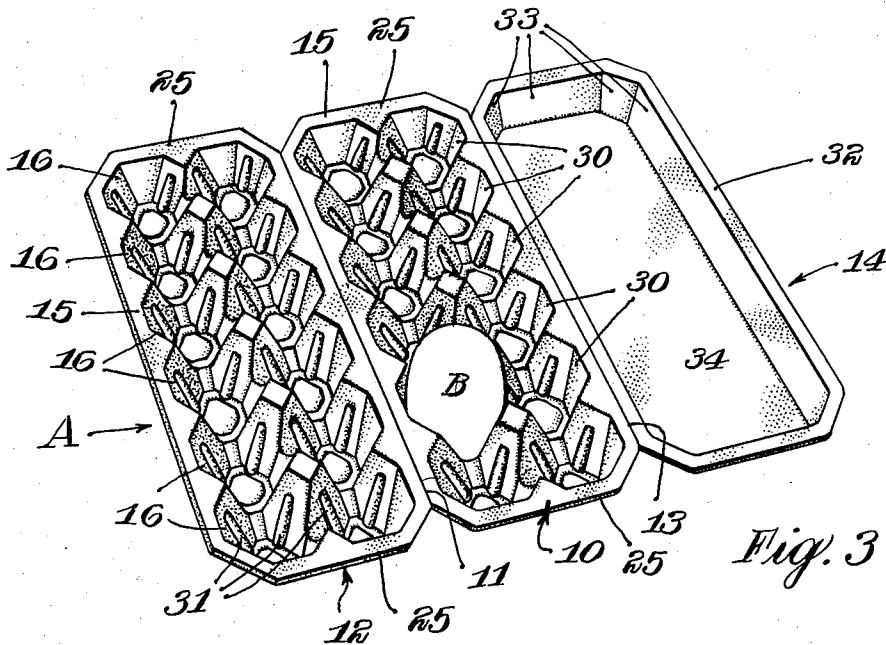
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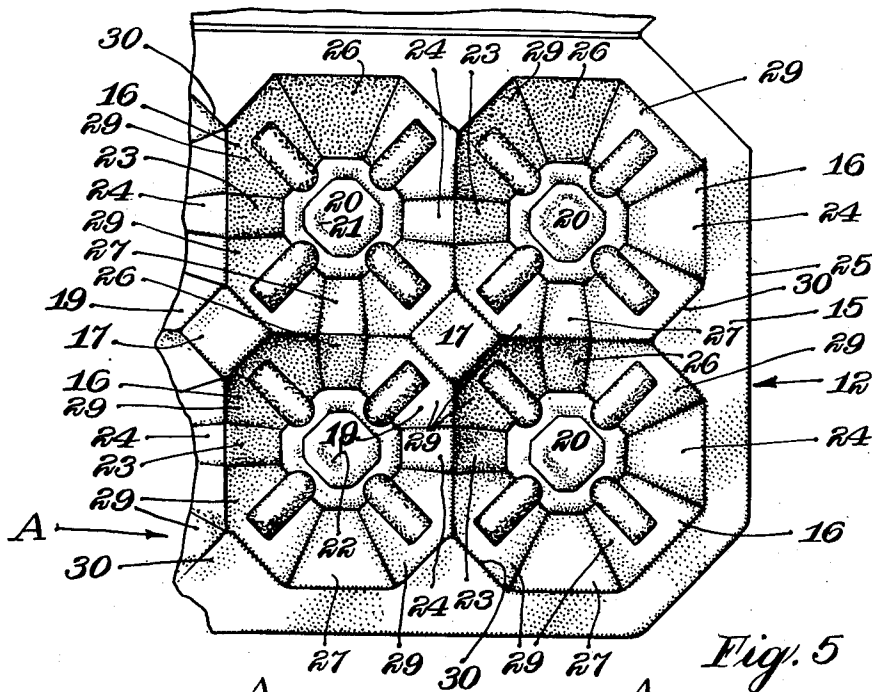


Fig. 5

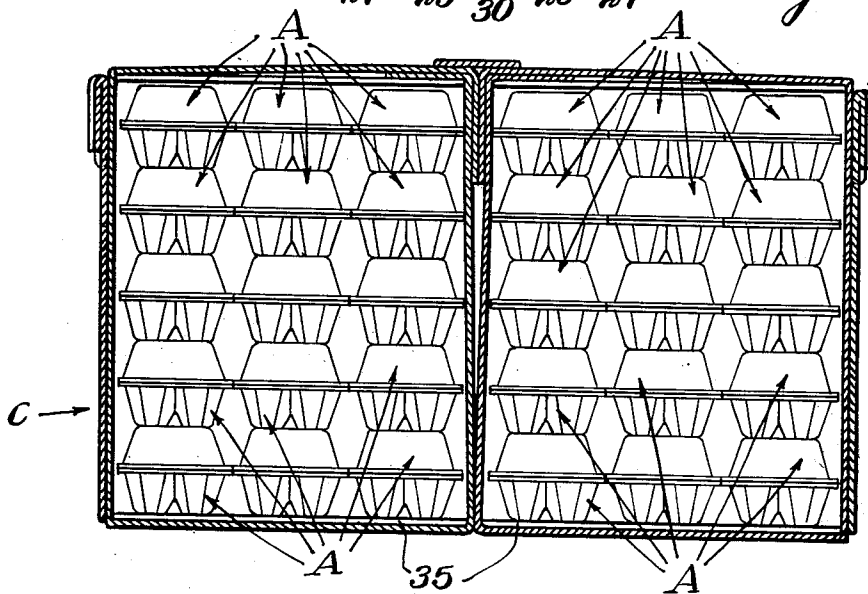


Fig. 6

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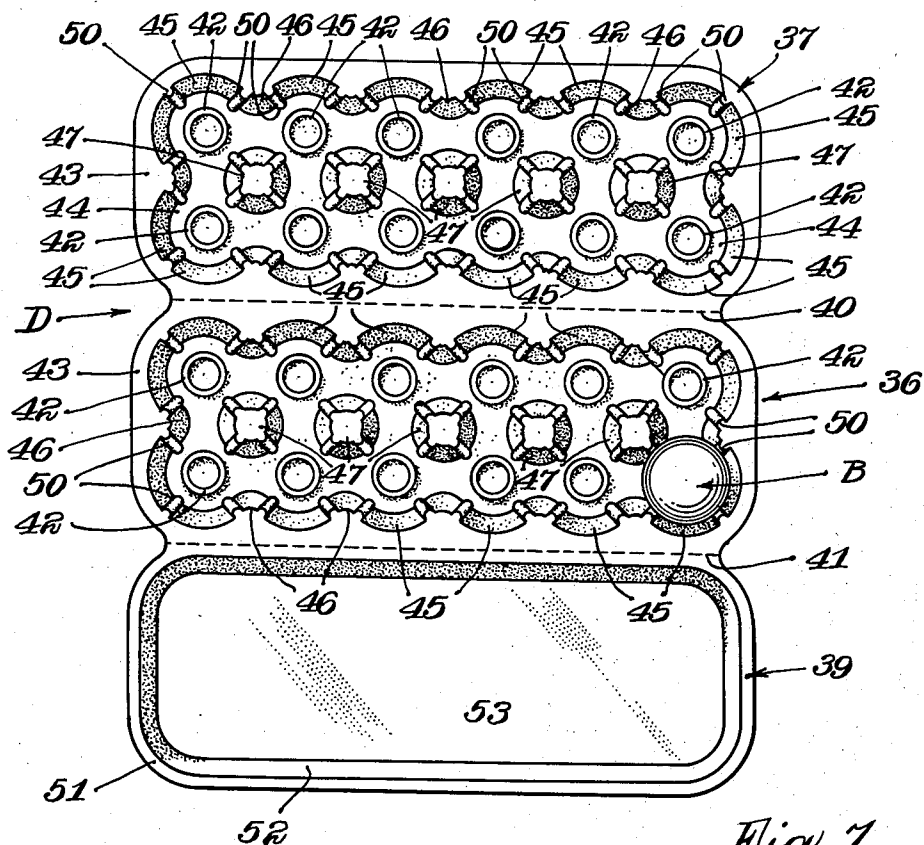


Fig. 7

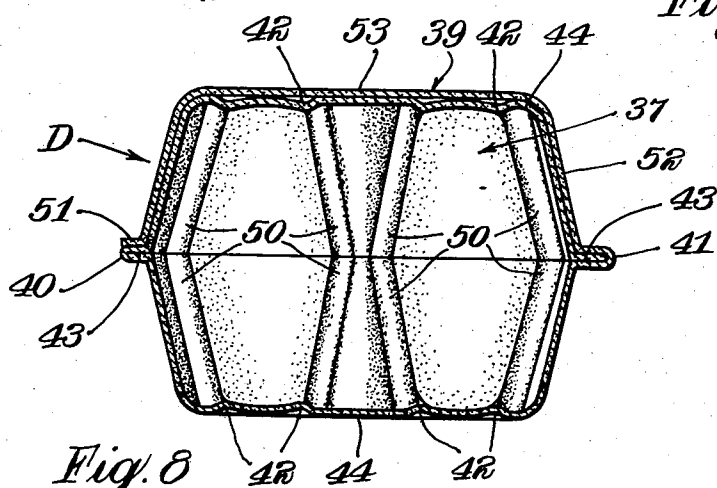


Fig. 8

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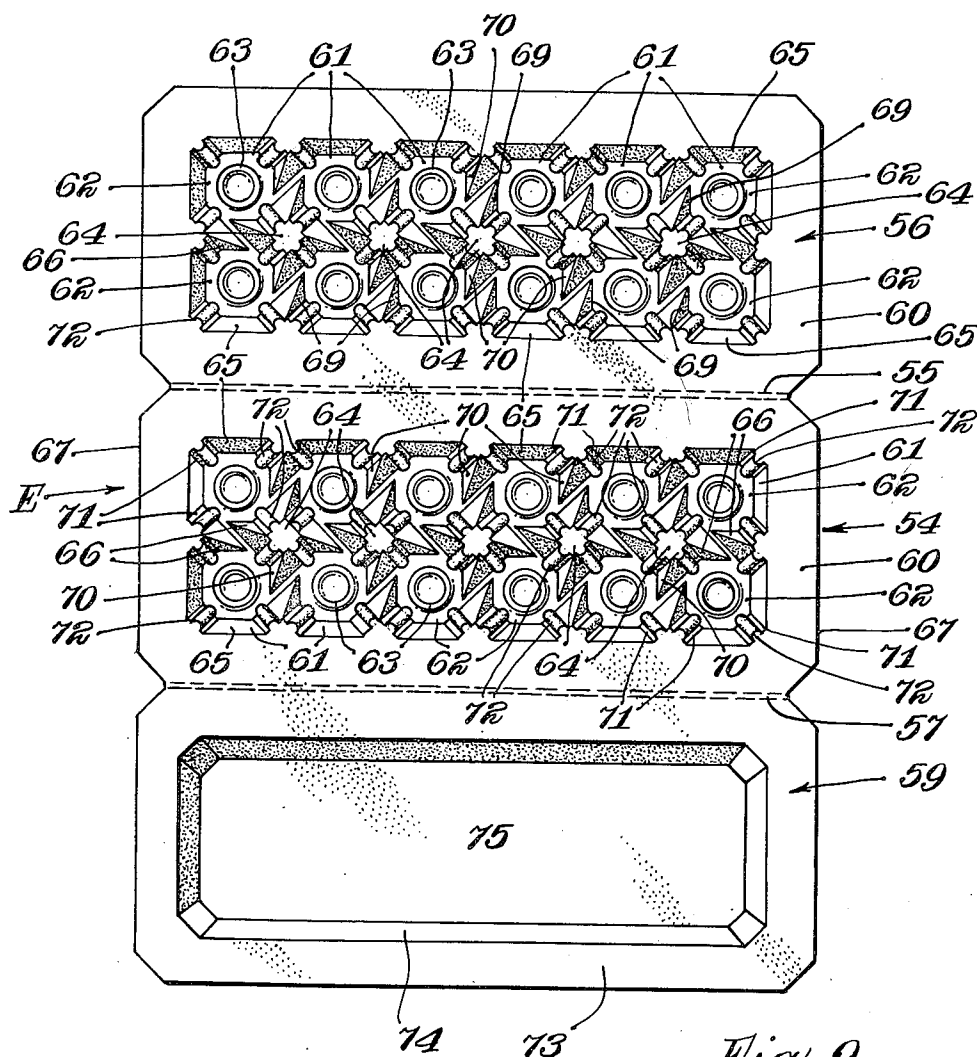


Fig. 9

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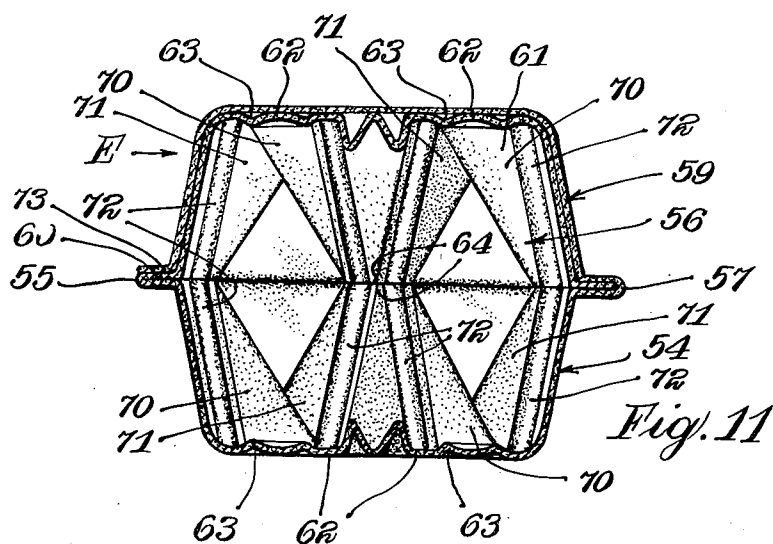
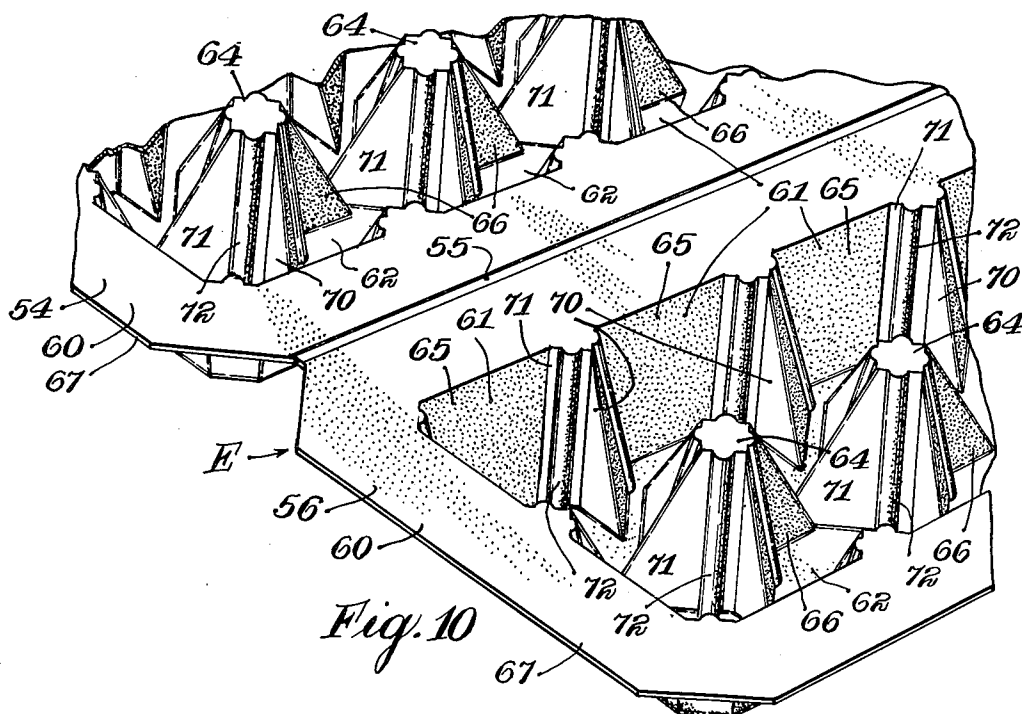
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6 Sheets-Sheet 6



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UNITED STATES PATENT OFFICE

2,600,130

EGG CARTON

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ware

Application December 3, 1945, Serial No. 632,331

8 Claims. (Cl. 229—2.5)

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My invention relates to an improvement in egg carton wherein it is desired to provide a simple and effective container for eggs or other fragile articles.

In the handling of eggs it is usual practice for the producer to place the eggs in an egg case of considerable size and to ship the eggs in this form to the market. The eggs are then usually removed from the egg cases and placed in smaller packages such as cartons capable of holding a dozen eggs. In this form the eggs are sold to the ultimate consumer.

This procedure requires the handling of the eggs several times. It is necessary to place the eggs in individual cells in the egg case and to later remove the eggs to place them in the smaller cartons. Considerable time is required for these operations.

Egg cases of the usual type contain for example thirty dozen eggs, and each egg must be contained in an individual cell within the case to protect the egg from damage during shipment. Usually egg flats formed of molded pulp or the like are placed between superimposed layers of eggs and fillers which provide individual cells hold these egg flats in spaced relation. It is economically desirable to form the fillers out of inexpensive material such as chip board or the like which possesses little strength. As a result the fillers occasionally become damaged in shipment causing a resulting loss of eggs.

It is an object of the present invention to provide an egg carton of a type capable of holding a dozen eggs, or any other convenient number for which it may be used, to replace the egg cartons, flats and fillers previously required. The eggs are merely placed in my cartons by the producer and a series of the cartons are placed within the egg case. The cartons are so constructed as to protect the eggs during shipment of the cases and at the same time provide an attractive carton which may be furnished the consumer.

A feature of the present invention resides in the provision of a carton formed of three connected elements. Two of these elements are arranged to enclose the egg and to protect the same from damage during handling or shipment. The third element is designed to fold over the remaining elements to form a top closure therefor and to provide an attractive cover which may be printed or stencilled with the name of the producer or with an attractive design.

A further feature of the present invention resides in the fact that the eggs are protected

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by my carton from movement in any direction. Cartons have previously been formed of molded pulp comprising a tray having receptacles designed to receive individual eggs and a hinged cover foldable over the eggs. Such a carton has the advantage of supporting the eggs and advertising the same. However, this type of carton can not be most successfully used in egg cases because of the fact that the cover section does not hold the eggs from upward movement and does not protect the eggs from injury from above.

A further feature of the present invention resides in the provision of a carton which holds the eggs from injury during shipment and which includes an added protection in the form of a cover which overlies the upper carton section. As a result a carton is formed possessing sufficient rigidity to withstand considerable weight, thus preventing injury to the eggs in the lowermost cartons of an egg case or the like.

A further feature of the present invention lies in the provision of a cover extending over the complete egg carton, which serves as a cushion to assist in supporting the weight of superimposed cartons.

A further feature of the present invention resides in the provision of a two section egg carton in which each section includes recesses for partially enveloping an egg and in adding to this carton a cover having a top and attached sidewalls. As a result the cover forms in effect an inverted tray which is extremely resistant to compression.

A further feature of the present invention resides in the provision of an egg carton having two sections which fold together to contain eggs therebetween and which are provided with a marginal flange extending about the same. A cover is hingedly connected to one of the two sections and is designed to fold over and enclose one of the sections. This cover is provided with a marginal peripheral flange which rests upon the flanges of the first mentioned carton sections to provide a structure which is extremely resistant to compression.

An added feature of the present invention resides in the provision of an egg carton having a series of recesses designed to partially enclose an egg and in providing ribs or other spacing means in the walls of these recesses for engaging the egg at spaced points. As a result the eggs are held with the major portion of their area in spaced relation to the walls of the recesses, thus allowing a free circulation of air about

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the eggs and flexibly supporting the eggs against injury due to shock.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

Figure 1 is a perspective view of an egg carton showing my new construction.

Figure 2 is a sectional view transversely through the carton illustrated in Figure 1.

Figure 3 is a perspective view of the carton in completely open condition.

Figure 4 is a perspective view of the carton in partially closed condition.

Figure 5 is a plan view of a detail portion of the case.

Figure 6 is a sectional view through an egg case showing the manner in which egg cartons may be packed therein.

Figure 7 is a top plan view of a modified form of carton construction in open position.

Figure 8 is a sectional view through the carton shown in Figure 7 when in closed position.

Figure 9 is a plan view of a modified form of carton construction in open position.

Figure 10 is a perspective view of a portion of the carton illustrated in Figure 9.

Figure 11 is a sectional view transversely through the carton shown in Figures 9 and 10 in closed position of the carton.

The egg carton A, illustrated in Figures 1 through 6 of the drawings, is formed of three sections hingedly connected together. The carton is preferably formed of molded paper pulp or the like, although other materials may be used in its manufacture. The hingedly connected sections fold from the open position shown in Figure 3 to the completely closed condition shown in Figure 1.

The section 10 is hingedly connected along one marginal edge 11 to a second section 12. The section 10 is likewise connected along an opposite edge 13 to a cover section 14. The eggs B are preferably supported in the intermediate section 10 and the section 12 and later the section 14 may be folded thereover.

The sections 10 and 12 are identical in form and will therefore be given similar numbers to indicate similar parts. Each section 10 and 12 is provided with two rows of pockets 16 therein for receiving individual eggs. Each pocket is in general of truncated pyramid form, but due to the fact that the pockets are relatively close together, certain adjacent walls merge together to destroy the true pyramidal shape.

As viewed from the undersurface, as seen in Figure 4 of the drawings, each section includes a marginal flange or frame from which project two parallel rows of truncated pyramids, adjacent sides of which merge together. As viewed from the inner surface, as seen in Figures 3 and 5 of the drawings, each section includes two parallel rows of spaced pockets having frusto-pyramidal posts therebetween.

With reference to Figure 5 of the drawings which illustrates a detail portion of the inner surface of the section 12, it will be noted that the marginal frame 15 and the upper surfaces 17 of the spaced posts 19 are in coplanar relationship. If the pockets 16 were spaced somewhat farther apart in each row and if the rows were slightly farther apart the pockets 16 would comprise frusto-conical depressions having an octagonal form at the point of merger with the plane

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surface 15. However, as the pockets 16 are rather close together the adjoining walls of the pocket do not extend up to the surface of the frame 15. Each pocket 16 includes a base 20 which is shaped as best illustrated in Figures 2 and 5 of the drawings. A circular or octagonal raised ring 21 extends above the level of the margins of the base to hold an egg B in position. A central depression 22 is formed within the ring 21 to permit the rounded surface of the egg to be properly centered upon the base. Obviously when the section 12 is inverted upon the section 10 the ring 21 extends below the surface of the base and the central depression 20 is above the level thereof.

The side walls of each pocket 16 are composed of a series of trapezoidal surfaces extending from the base 20 either to the surface 15 or into merging relation with a surface of the next adjacent pocket. The posts 19 are formed by one wall of each of four adjacent pockets 16, the posts 19 being formed at the center between these four pockets. Two opposed walls 23 and 24 of each pocket terminate along parallel lines substantially parallel to the ends 25 of the sections. A second opposed pair of walls 25 and 27 of each pocket terminate on lines substantially parallel to the side edges of the carton sections or parallel to the fold lines 11 and 13. The diagonally extending faces 29 of the pockets 16 either combine to form the posts 19 or else extend to the surface of the frame 15 to form pointed projections 30 extending inwardly toward the interior of the carton.

Ribs 31 are provided in the diagonal surfaces 29, these ribs extending inwardly into the pockets. As viewed in Figure 4 of the drawings these ribs form grooves in the truncated pyramid forming pockets 16. The ribs 31 engage angularly spaced portions of the eggs B to hold the major portion of the area of the egg spaced from the pocket walls and to permit a free circulation of air about the eggs.

In packing the carton A, the eggs B are inserted in the pocket 16 in the section 10. The pockets 16 are of a depth to accommodate approximately the lower half of each egg. The section 12 is then folded upon the section 10, the pockets 16 of the section 12 extending over the eggs to enclose the upper half thereof. The carton is then in the condition illustrated in Figure 4 of the drawings. The section 14 is then folded to overlie the sections 10 and 12 and to form a top closure therefor.

The section 14 comprises a frame or flange 32 which is connected by opposed inclined walls 33 with the cover panel 34. The walls 33 are each trapezoidal in shape and form a tapered tray which when inverted encloses the section 12. The marginal flange 32 rests upon the flanges 15 of the sections 10 and 12 and the section 14 provides a cushion to support the weight of superimposed egg cartons. The inclined wall 33 opposite the hinged side of the section 14 and the corresponding side wall of the section 12 are provided with projections 33 and 33' respectively, which frictionally hold the cover section 14 in closed position.

In Figure 6 of the drawings I disclose an egg case C showing one manner in which the cartons A may be packed therein. The cartons A are placed side by side on the bottom 35 of the egg case, the case being preferably of proper size to accommodate six cartons or six dozen eggs. A second layer of cartons A is placed to rest upon the lowermost layer and this process is continued

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until the case is entirely filled. If desired alternate layers of cartons A may extend at right angles to the remaining cartons.

In Figure 7 of the drawings I disclose a carton structure D which differs in detail construction from the carton A previously described. The carton D is formed of three sections 36, 37 and 39. The intermediate section 36 is connected along the fold line 40 to the similar section 37 and is connected along the parallel fold line 41 to the cover section 39.

Each of the sections 36 and 37 are similarly formed and the parts thereof may be described by similar numbers. These sections are provided with spaced connected pockets, each of which is designed to contain an egg. The pockets may best be noted by observance of the raised rings 42 in the bases of these sections. The flange or frame 43 of each section is connected to the base 44 of the corresponding section by a series of arcuate walls 45 having inversely arcuated wall sections 46 therebetween. The arcuate walls 45 are concave to fit about an egg resting on each raised ring 42 while the inversely arcuated wall sections 46 connect adjacent pockets.

The pockets are formed in two spaced rows, the pockets of one row being adjacent and opposed the pockets of the other row. Posts 47 which are of frusto-conical form space each pair of opposed pockets from the next adjacent pair of pockets. Ribs 49 are formed on each post 47, one rib being directed toward each adjacent pocket. Ribs 50 are likewise provided in the arcuate wall sections 45, each rib being directed toward an adjacent pocket. The ribs 49 and 50 engage against the surface of an egg in the pocket to hold the major portion of the surface of the egg in spaced relation to the wall of the pocket. This provides a free circulation of air about the eggs within the carton.

The section 39 comprises a marginal frame or flange 51 which is connected by inclined walls 52 to the top closure panel 53. When in closed position the section 37 folds over the eggs and the section 36, and the section 39 folds over and encloses the section 37.

It will be noted that the relatively flat panel 53 may be used in the same manner as the panel 34 to provide an advertisement or display and to indicate the origin of the goods. The flat top panels, as well as the wall panels connecting the top panel with their marginal flange or frame may be printed upon or stencilled to provide the desired display or design.

In Figures 9, 10, and 11 of the drawings I disclose the modified form of carton which differs from the cartons A and D only in the structure of the pockets. The carton E illustrated in Figures 9, 10, and 11 comprises an intermediate section 54 which is connected along one edge by a fold line 55 to a similar section 56. The intermediate section 54 is connected along an opposed edge by the fold line 57 to a top closure section 59. The sections 54 and 55 are designed to encompass the eggs and the section 59 is designed to fold over the section 56 to enclose the same.

Each of the sections 54 and 56 includes a marginal flange 60 and a series of spaced pockets 61. Each pocket includes a base 62 having a raised ring 63 therein to properly locate an egg within the pocket. The base 62 of each pocket is substantially octagonal in shape and is connected by trapezoidal and triangular walls either to the flange 60 or to the top surface 63 of one of the posts located between each four adjacent pockets.

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The pockets 61 are preferably located in two rows, with the pockets of one row being in adjacent opposed relation to the pockets of the next. A post 64 spaces each pair of opposed pockets from the next adjacent pair of pockets and acts to space the eggs contained in the pockets. Each pocket 61 is provided with two opposed sides which adjoin the bases 62 of the pockets along lines parallel to the fold lines 57 and 59. One of these opposed walls 65 is trapezoidal in shape while the opposed wall 66 is triangular in shape. Each pocket is likewise provided with two opposed walls joining the bases 62 of the pockets along lines parallel to the ends 67 of the sections. With the exception of the end pockets these opposed walls 69 and 70 are triangular in shape. The diagonally extending walls are all trapezoidal in outline shape and these diagonally extending walls 71 are provided with inwardly extending ribs 72 therein which are designed to engage angularly spaced points on the surface of the egg to hold the major portion of the surface of the egg in spaced relation from the walls of the pocket.

From the foregoing description it is believed obvious that when the section 56 is folded over the eggs in the section 54, the ends of the posts 63 are in contacting relation and the flanges 60 of the two sections are in abutting relationship. Each egg is enclosed in a pocket 61, the lower portion of the egg being enclosed within a pocket in the section 54 and the upper part of the egg being embraced by a pocket in the section 56.

The section 59 includes a marginal flange 73 which is connected by trapezoidal side walls 74 to a top closure panel 75. When in folded condition the section 59 overlies the section 56 and conceals the same. As a result the section 59 forms a cover for the carton and also an added support therefor. As the flange 59 rests flat against the flanges 60 of the sections 54 and 56 the carton is capable of sustaining considerable weight without injury to the eggs.

It will be noted that while I have illustrated several forms of construction of my egg carton, each of these forms has in common the fact that two pocketed sections enclose the egg while a third section encloses one of the other sections. It should also be noted that in every case the cover section is of tray shape having a base connected by sloping side walls to a marginal flange. As a result this cover section is capable of sustaining considerable weight and will enable a series of cartons to be shipped one over the other without danger of injury to the eggs.

It will also be noted that the flat surfaces of the cover section provide a convenient area on which a display or advertisement may be located. As a result the egg cartons may be merely removed from an egg case and placed for sale without handling the individual eggs.

In accordance with the patent statutes, I have described the principles of construction and operation of my egg carton, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A molded packing unit for eggs and other fragile articles comprising a pair of tray sections foldably connected together along one edge thereof, means within said tray sections for holding the articles contained in spaced relation and

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engageable with said articles in closed position of said two sections, each of said sections having a marginal peripheral flange extending thereabout, the flanges of said two sections abutting in face-to-face relation in closed position of said two sections, and a third section foldably connected to one section of said pair, said third section comprising a tray foldable over one of said sections and dimensioned to enclose the same, said tray having a peripheral flange abutting against the peripheral flange of the section enclosed in closed position of said third section.

2. A molded packing unit for eggs comprising three sections foldably connected in series, the intermediate section and one end section including means for supporting the articles enclosed therebetween when folded into superimposed relation, a marginal flange on said sections, the marginal flange on said one end section lying in face-to-face contact with the flange on said intermediate section in closed position of said sections, and the other end section comprising a tray foldable over said one end section in closed position of said sections and dimensioned to enclose the same, a marginal flange on said tray abutting the flange of said one end section in face-to-face relation in closed position of said sections.

3. An integral molded cellular container for eggs comprising three sections connected together by only two hinge lines, one of said molded sections being pan-shaped and having integral side walls at least one of which is turned outwardly to form a connecting flange, the other two molded sections being similar and integrally connected together along one of said fold lines, and said other two molded sections including a pan-shaped body including a plurality of rows of cells, the cells of one of said two sections being foldable into opposed relation to the cells of the other of said two sections, said two sections having marginal encircling flanges extending thereabout foldable into surface contacting relation, one of said flanges being integrally connected to said connecting flange of the first named section along the other fold line, the edges of the side walls of said one section abutting the flange of the other of said two sections, said one section being dimensioned to overlie and enclose said other of said two sections.

4. An integral molded cellular container for eggs comprising three sections including a first end section, a center section, and a second end section, said center section and said first end section comprising pan-shaped bodies having a plurality of rows of cells therein, said sections having marginal encircling flanges thereon connected along a line of fold so that said first end section is foldable to overlie said center section with said marginal flanges in surface contacting relationship, the second end section comprising a pan-shaped body foldably connected to the marginal flanges of said center section, said second end section being foldable over said first end section and dimensioned to enclose the same, and having integrally connected side walls engaging the marginal flange of said first end section in edge abutting relation.

5. The structure described in claim 4 and in which the rows of cells are separated by spacing posts, the spacing posts of said center section and

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said first end section abutting when these two sections are folded into superimposed relation.

6. The structure described in claim 4 in which the plurality of rows of cells in the center section and the first end section are formed by a series of center posts between the rows of cells and by inward projections on the walls of the cells, said center posts and said inward projections abutting when these two sections are folded into superimposed relation.

7. A molded pulp carton comprising a pair of cellular tray sections integrally connected to one another by a hinge along an edge thereof and adapted to be folded about said hinge to a closed condition, said sections having portions of substantial area which abuttingly engage in said closed condition to vertically brace the carton, and a non-cellular, tray-like cover section integrally connected by a hinge to a free edge of one of said cellular sections and foldable about said last named hinge into enclosing relation to the other of said cellular sections, said cellular and non-cellular sections being of substantially equal sectional area in the plane of said hinges and each being provided with opposed pairs of upstanding, upwardly inclined side and end portions integrally connected to prevent lateral spread under vertical load, the non-cellular section having a top portion engageable with the section enclosed thereby on all four sides of the carton.

8. A molded pulp carton comprising a pair of cellular tray sections integrally connected to one another by a hinge along an edge thereof and adapted to be folded about said hinge to a closed condition, each of said sections being provided with abutments disposed internally of and along the margins thereof and with a longitudinally extending series of posts along the center thereof, which respective abutments and posts are of substantial area and engage one another in said closed condition to vertically brace the carton, and a non-cellular, tray-like cover section integrally connected by a hinge to a free edge of one of said cellular sections and foldable about said last named hinge into enclosing relation to the other of said cellular sections, said cellular and non-cellular sections being of substantially equal sectional area in the plane of said hinges and each being provided with opposed pairs of upstanding, upwardly inclined side and end portions integrally connected to prevent lateral spread under vertical load, the non-cellular section having a top portion engageable with the section enclosed thereby on all four sides of the carton.

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