

March 14, 1961

R. F. REIFERS

2,974,842

EGG CARTON

Filed May 13, 1958

2 Sheets-Sheet 1

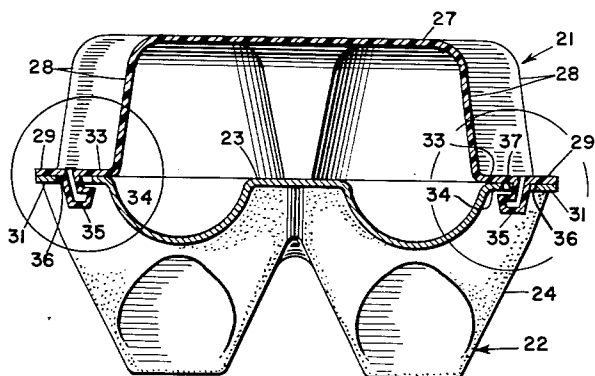
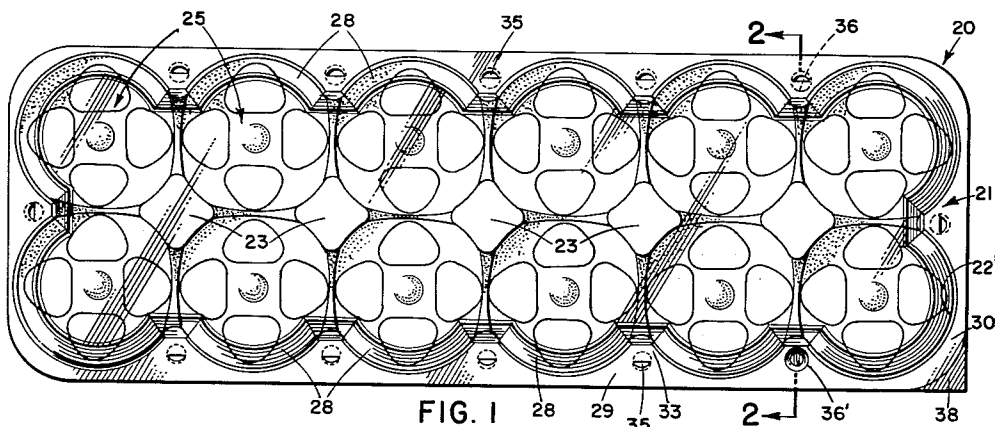


FIG. 2

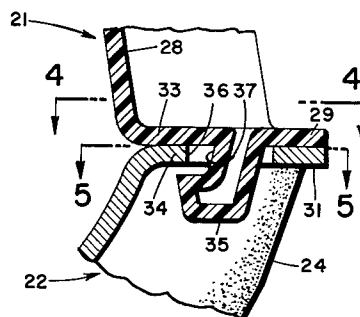


FIG. 3

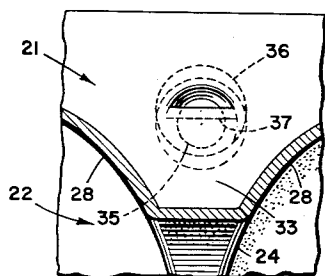


FIG. 4

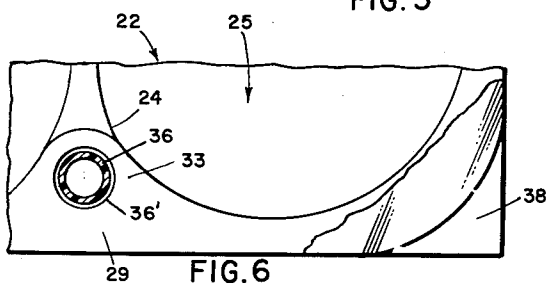


FIG. 6

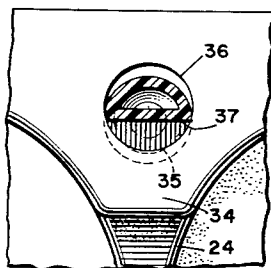


FIG. 5

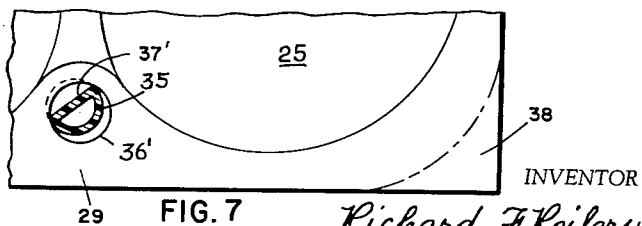


FIG. 7

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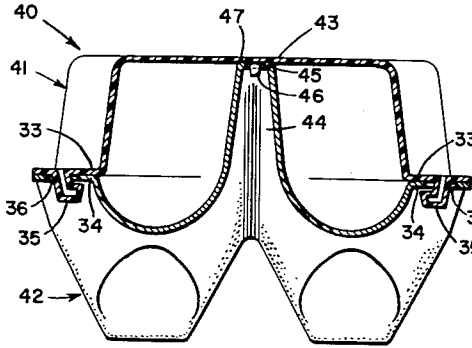


FIG. 8

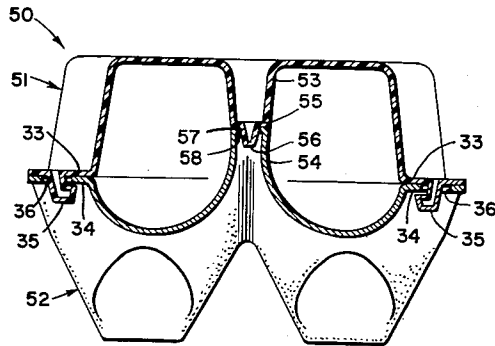


FIG. 9

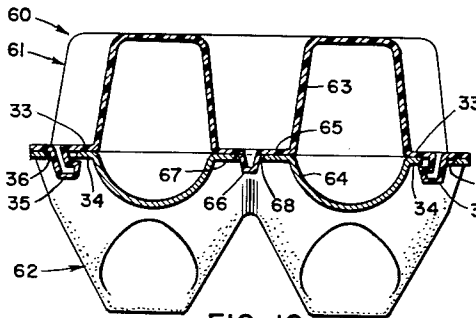


FIG. 10

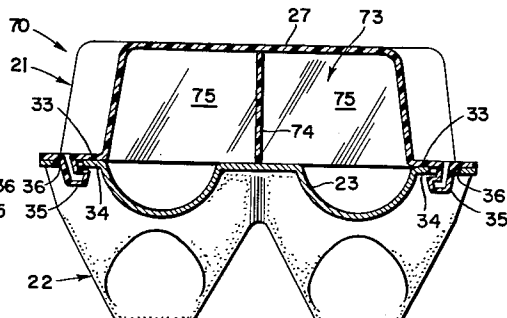


FIG. 11

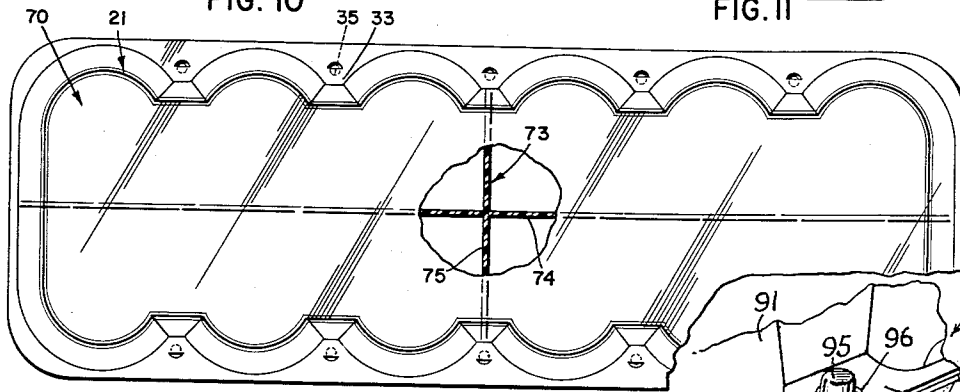


FIG. 12

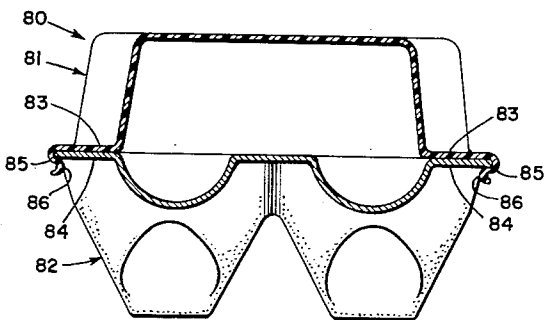
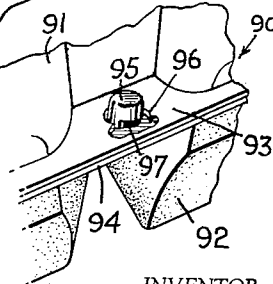


FIG. 13

FIG. 14.



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EGG CARTON

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11 Claims. (Cl. 229—2.5)

The present invention relates to an egg carton, and more particularly to an egg carton having a separate cover and bottom.

Cartons, particularly egg cartons, have been improved over the years in order to make them more responsive to the demands of good packaging, such as security and protection of the contents, provision of space for advertising material and attractive and appealing packages. In addition, the cartons should be readily closed, protected from accidental opening while closed, and be readily openable without resort to any mechanical means or devices. All of the above demands must be counterbalanced by the demand that the package be economical and should cost only a fraction of the cost of the material within the package.

Prior art containers, in general, have met some of the above noted requirements; however, in the field of egg cartons with which the present invention is primarily concerned, there has remained much room for improvement in the package. In particular, in the egg carton field, there has been a notable lack of a proper carton structure which provides a full view of the eggs contained therein when the cartons are stacked as is common in the refrigerated display cases now widely in use.

An object of the present invention is the provision of a carton having a separate top and bottom which will protect fragile objects held therein and will at the same time permit inspection.

Another object of the present invention is to provide a carton with a separate cover and bottom that are securely but releasably held together.

Still another object of the present invention is the provision of a carton having a separate cover and bottom together with a latching construction for securing the cover to the bottom in a releasable fashion, which construction facilitates the use of a transparent plastic top and a molded pulp bottom.

A further object of the present invention is to provide a carton construction which is economical, permits the viewing of the contents of the carton, securely but releasably holds a separate cover and bottom of the carton together and also protects the contents of the carton.

Other objects and many attendant advantages of the present invention will become readily apparent upon consideration of the following specification and drawings wherein:

Fig. 1 is a plan view of an egg carton made in accordance with the present invention.

Fig. 2 is an enlarged sectional view taken on the lines 2—2 of Fig. 1 and showing the locking engagement of the carton cover and bottom.

Fig. 3 is a further enlarged detail view of the area circled at the right side of Fig. 2, showing the latching construction for the carton cover and bottom.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 3.

Fig. 6 is a detail view of the area circled at the left side of Fig. 2, showing an imperfect latching construction modified to provide for easy opening of the carton.

Fig. 7 is a view similar to Fig. 6, and showing a modified imperfect latching construction.

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Fig. 8 is a sectional view of a modified form of egg carton having a separate transparent cover and a molded pulp bottom.

Fig. 9 is a sectional view of yet another form of egg carton having separate cover and bottom.

Fig. 10 is a sectional view of still another form of egg carton having separate cover and bottom.

Fig. 11 is a sectional view of an egg carton similar to the one shown in Fig. 1, but having strengthening partitions in the cover of the egg carton.

Fig. 12 is a plan view of the egg carton shown in Fig. 11.

Fig. 13 is a sectional view of a modified form of egg carton having a different embodiments of the latching construction for the cover and bottom.

Fig. 14 is a perspective view with parts broken away of a modified form of egg carton.

Referring now to the drawings, where like reference characters are used throughout the several views, to designate like or corresponding parts, there is shown in Fig. 1 an egg carton 20, the cover 21 of which is transparent and the bottom 22 of which may be seen through the cover 21. As may be seen, the bottom 22 has a number of upstanding posts 23 which, together with the upstanding walls 24, which may be seen in Fig. 2, form a plurality of egg cells 25. The bottom 22 of carton 20 is preferably formed of molded pulp, and has the same configuration, in a preferred embodiment, as the bottom of the carton described in U.S. Patent No. 2,771,233, issued to John W. Cox on November 20, 1956. The cover 21 as shown in Fig. 1 is similar in some respects to the cover of the carton disclosed in said patent.

The cover 21, as may be seen in Fig. 2, has a generally flat top 27 and depending, outwardly flying side walls 28 and similarly depending and outwardly flaring end walls, not shown. The depending side walls 28 are scalloped as shown, and have marginal side flanges 29 and end flanges 30. The upstanding walls 24 of the bottom 22 are also scalloped, and the bottom has marginal side flanges 31 underlying the side flanges 29 of the cover 21 and marginal end flanges underlying end flanges 30. Due to the scalloped configuration of the side and end walls of the cover 21 and bottom 22, there are provided between the scallops spaces into which the flanges 45 extend. In the form of execution shown in the drawings, these spaces provide generally triangular shaped planar regions between adjacent egg calls, but it will be understood that the shape of the planar regions is not necessarily limited to triangular. Each of the regions 33 of the cover 21 is above, and has a bearing relationship with a similar region 34 of the bottom 24.

Referring to Fig. 3, there may be seen the depending wall 28 of the cover 21 and the horizontally extending region 33 of the flange 29. Underlying the region 33, there may be seen the region 34 of the flange 31 of the bottom 24. A hook depends from the region 33 and comprises a conical projection 35 that extends through a hole 36 in the region 34 and has a slot 37 therein on the inner face thereof.

In Fig. 4 there may be seen the scalloped walls 28 and the generally triangular region 33 of the cover 21. There may be also seen the hooked projection 35 extending downwardly and through the hole 36 in the region 34 of the bottom 24.

In Fig. 5, there may be seen the inner face of the projection 35 underlying a part of the region 34, as well as the region 33 and the slot 37.

Each of the regions 33 shown in Fig. 1, of which there are twelve, has a hook comprising projection 35 extending downwardly therefrom, and each of the corresponding regions 34 in the bottom 24 has a hole 36 therein to receive the projections 35. It will be understood that

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in some cases, less than twelve projections and holes may be used; for instance, the projections and holes in the end walls of the cover and bottom may be omitted.

To place a cover 21 on a bottom 22, it is only necessary to align the hooked projections 35 with the holes 36 and to then press the cover 21 downwardly; this will cause the conical inner face of the projections 35 to cam the projections 35 outwardly, this outwardly camming action being permitted by the resiliency of the cover 21, particularly of the top 27. This resiliency will cause the walls 28 to spring back to their normal position and in so doing cause the slot 37 of projection 35 to move inwardly so that it has a hooked locking engagement with a part of the molded pulp which forms the hole 36. In some instances, the edge of the hole 36 may deflect downwardly a small amount to accommodate the projection 35 until the slot 37 is in position.

It will be understood that the regions 33 and 34 serve to receive and transmit forces from the top 27 around the eggs contained in the carton 20 and to the bottom 22, and particularly the walls 24 thereof.

Due to the above noted resiliency of the cover 21, which is preferably made of a transparent plastic material, there is obtained a secure locking of the cover 21 to the bottom 22; it will be particularly noted that when the carton 20 is grasped, as it ordinarily is, by a person placing his fingers along one of the walls 28 and his thumb on another wall 28 of the cover 21, and slightly pushing the fingers and thumb together to grasp and pick up the carton, the natural action of the person will tend to lock even more securely the slot 37 and the region 34, so that there is no danger of separation of the cover 21 and bottom 22 from handling of the carton 20.

In order to provide for facile removal of cover 21 from bottom 22, one corner of cover 21 is made square and extends beyond the corresponding corner of the bottom 22, as is clearly shown in Fig. 1; this provides a tab 38 on cover 21 which may be readily grasped. The region 33 which is closest to the tab 38 along the side of the carton 20, and the corresponding region 34 are constructed so as to provide an imperfect latching construction. This is done to permit the tab 38 to be picked up so that the cover 21 may be ripped off with a successive releasing of the projections from the holes. This is accomplished by providing an over-size hole 36' as shown in Fig. 6, or providing a slot 37' on projection 35 which is not on the inner face of projection 35, but which is on another face thereof; as shown in Fig. 7, the slot 37 is on a face which is at an angle to the longitudinal axis of the carton 20.

When it is desired to remove a cover 21 from a bottom 22, the tab 38 is grasped with one hand while the other hand holds the bottom 22. The tab 38 is then lifted upwardly and due to the failure of projection 35 to latch (Fig. 6) or the imperfect latching of projection 35 (Fig. 7), one corner of cover 21 is permitted to lift. Thereafter, the other projections 35 are withdrawn from their respective holes 36 in a successive or sequential fashion, so that only a gentle force is necessary to unlatch the several latches. It will be understood that during this unlatching movement of the remaining projections 35, the edges of the holes 36 may deflect slightly upwardly.

Referring to Fig. 8, the carton 40 is provided with a bottom 42 and cover 41 which has in the top central part thereof a region 43. The bottom 42 is cellular in configuration and is generally similar to the bottom 22 of the carton 20, but differs therefrom in that the upstanding posts 44 of the bottom 42 extend upwardly and have a planar region 45 at the top thereof which engages with the underside of the cover 41 at the region 43. Region 43 may be provided with a downwardly extending hook comprising slotted conical projection 46 which is similar in configuration to the projection 35, and this projection 46 extends into a hole 47 in the region

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45 which is similar to the holes 36. In addition to the latching construction provided as described, there may also be optionally provided in this embodiment latching constructions positioned as in the embodiments shown in Figs. 1 to 7, hereof, and comprising the hooked projections 35 on regions 33 and holes 36 in the regions 34.

It will be understood that an egg carton constructed in accordance with the embodiment in Fig. 8 provides additional protection for the eggs within the cells 25 by virtue of the upwardly extending posts 44 engaging with the underside of the cover 41. In addition, the cover 41 and bottom 42 may be provided with regions 43 and 45 similar to the regions 33 and 34, i.e., they carry the same latching construction as regions 33 and 34.

In Fig. 9, there is shown an egg carton 50 having a cover 51 and bottom 52, cover 51 having downwardly extending posts 53 of less depth than the cover 51. The bottom 52 has upstanding posts 54 of greater height than said bottom 52 and engaging the posts 53 of the cover. Posts 53 may be provided with a region 55 at its lower end having a projection 56 extending through a hole 57 in a region 58 at the top of the post 54. As in Fig. 8, the marginal flanges of the cover and bottom may be provided with regions 33 and 34 having latching construction as in Figs. 1 to 7.

The operation and action of the carton 50 shown in Fig. 9 is substantially the same as that of the carton 40 shown in Fig. 8. It will be appreciated that carton 40 has a cover whose top surface is substantially undiminished, whereas the carton 50 provides a somewhat simpler bottom to be molded with molded pulp technique.

In Fig. 10, there is shown a carton 60 having a cover 61 and bottom 62, cover 61 having posts 63 extending downwardly from the top thereof and of equal depth to the cover. The posts 64 of the bottom 62 are of equal height with the bottom, and the posts 63 are provided at their lower ends with a part or region 65 which may carry a hooked projection 66, while the posts 64 are provided at their upper ends with a part or region 67 which may have therein a hole 68. As before, the marginal flanges of the cover 61 and the bottom 62 may be provided with regions 33 and 34.

Where the central contacting parts of the cover and bottoms of cartons 40, 50 and 60 are provided with latching constructions as shown, dependency is had on the flexibility and resiliency of the pulp surrounding the holes to permit the latching and unlatching of the hooked projections. It will be appreciated that the bottom 62 of Fig. 10 is substantially the same as the bottom 22 of Fig. 1, with the exception that the upper ends of the posts may carry regions 67 with holes 68.

The contacting parts of the covers and bottoms of the embodiments shown in Figs. 8, 9 and 10 provide for more security of the egg by permitting any forces applied to the top of the covers thereof to be transmitted not only through the marginal side flanges, but also through the central section of the carton.

Referring to Figs. 11 and 12, the carton 70 is provided with a cover 21 and a bottom 22 which are the same as the cover 21 and bottom 22, respectively, illustrated in Fig. 1. In the carton 70, however, there is provided an upwardly extending partition generally designated 73 which extends upwardly from the posts 23 of the bottom 22 and engage the underside of the top 27 of cover 21, and thus enters into supporting engagement therewith. The partition 73 comprises longitudinally extending elements 74 and at least one transversely extending element 75, as may be seen in Fig. 12.

It will be understood that the function of the partition 73 is to transmit forces applied to the cover 21 centrally through the carton 70.

In Fig. 13 there is shown a carton 80 having a cover 81, preferably of transparent plastic, and bottom 82, these parts being similar in carrying, protection and visibility functions to the carton 20. The regions 83

of the flange of cover 81 are provided with hooks comprising downwardly extending reversely curved projections 85, and these projections 85 may be either separate along the longitudinal edge of the cover, or may be continuous. The projection 85 has, due to its reverse curvature, a camming surface 86. The region 84 of the bottom 82 is similar to the regions 34 of the bottom 22, but of course there is no hole corresponding to the hole 36.

The placing of cover 81 on the bottom 82 of carton 80 is accomplished in generally the same manner as with the cover and bottom of carton 20, i.e., cover 81 is aligned over bottom 82 and is then pushed downward, this action springing outwardly the projections 85 due to the resiliency and deformation of the material of which cover 81 is made or deflecting the material of region 84. To remove cover 81, it is only necessary to hold the carton 80 by the bottom 82 and to place a thumb under projection 85 to spring it outwardly and to simultaneously raise the cover 81.

In addition, it will be understood that when the carton 80 is handled, as by a purchaser grasping the cover 81, the grasping action of the purchaser will tend to more tightly hold the cover 81 to the bottom 82 because it will urge the hook means into a position of greater strength with respect to the outstanding flange part of the region 84.

In Fig. 14 there is shown a perspective view of a part of an egg carton 90 having a cover 91 that is preferably of transparent plastic and a bottom 92 of molded pulp. In this embodiment the regions 93 of the flange of cover 91 are provided with holes 96, and the bottom 92 has regions 94 that have hooks comprised of integral molded pulp projections 95 extending upwardly through the holes 96. The hook and hole configurations of the carton 90 partake of other features of invention above described, it being noted that the slot 97 is on the outer face of projection 95. This construction thus ensures locking engagement of the bottom 92 and cover 91 when cover 91 is grasped to pick up the carton 90.

In accordance with the invention, there has been provided a carton, particularly adapted for the packaging of eggs, which securely protects the contents of the carton, provides adequate space for advertising material on the carton, is readily closed by automatic machinery or by hand, is protected from accidental opening during handling and is readily openable without resort to any mechanical devices. In addition, the carton herein disclosed is particularly suited for production with a cover of transparent plastic material and a bottom of molded pulp, which materials have on the one hand the advantage of sales appeal and on the other hand the advantages of sturdiness and economy of production. There is thus combined in one carton a highly appealing yet economical package.

It will be obvious to those skilled in the art that various changes may be made without departing from the spirit of the invention and therefore the invention is not limited to what is shown in the drawings and described in the specification, but only as indicated in the appended claims.

What is claimed is:

1. In a carton, a bottom having upstanding walls and a cover therefor having downwardly extending inwardly-deflectable walls, said bottom and cover having contacting faces on generally horizontally extending marginal peripheral flanges providing a force transmitting path from said cover to said bottom, hook means on the peripheral flanges at opposite sides thereof to secure said cover to said bottom, said hook means comprising a projection extending from and normal to the face of one flange, said projection having a slot opening toward the interior of said carton from an inner face thereof, said slot portion having an upper edge line in the plane of the contacting face of said one flange and having a width to receive said other flange therein, said other flange having a portion forming a hole therein through which

said projection is removably received, said slot portion lockingly engaging over an inner marginal edge portion of said hole and being further urged into such engagement by the application of lateral pressure on the inwardly-deflectable walls of said cover adjacent said one flange.

2. The carton of claim 1, said bottom having upstanding posts therein, and partition means extending upwardly from said posts to the underside of said cover for supporting engagement therewith.

3. The structure of claim 1, said projection including a camming surface extending through said slot portion in angular relationship to the face of said one flange whereby engagement of said projection on the inner marginal edge portion of the hole will cause the projection to be laterally deflected subsequent to the slot portion engaging over said marginal edge portion of the hole.

4. The structure of claim 1; said cover having a flat, planar top, said top including a downwardly extending conical projection having a slot therein, said bottom having an upstanding post engaging said cover and removably receiving said projection therethrough.

5. The structure of claim 1; said cover having a downwardly extending post of a depth less than the upstanding walls of said cover, said bottom having an upstanding post of greater height than the upstanding walls of said bottom, said posts of the cover and bottom including cooperating slots and projections for orienting the cover and bottom with respect to each other.

6. The structure of claim 1; said projections depending from the peripheral flange of said cover and said holes being disposed in the peripheral flange of said bottom.

7. The structure of claim 1; said projections being disposed on the peripheral flange of said bottom, and said holes being disposed in the peripheral flange of said cover.

8. The structure of claim 1; said bottom having a plurality of scallops forming cells for eggs, said marginal flange extending into the spaces between said scallops, one of said holes extending transversely through each of the spaces between said scallops, said cover including scallops in the inwardly-deflectable walls conforming to those in said bottom, the marginal flange of said cover extending into the spaces between said scallops, the spaces between the scallops of said cover each including one of said projections for cooperating with one of said holes in the marginal flange of said bottom.

9. The structure of claim 1; the marginal flange of said cover having a portion projecting beyond the marginal flange of said bottom for facilitating the separation of said cover from the bottom.

10. The structure of claim 1; said marginal flanges being disposed in parallel relation along two side edges of said carton, said hook means being disposed along both side edges of said carton.

11. The structure of claim 1; said bottom comprising a molded pulp material, and said cover comprising a transparent plastic.

References Cited in the file of this patent

UNITED STATES PATENTS

931,637	Odell	Aug. 17, 1909
1,028,253	Murray	June 4, 1912
2,004,449	Stanley	June 11, 1935
2,428,384	Randall	Oct. 7, 1947
2,578,739	Randall	Dec. 18, 1951
2,843,304	Reifers	July 15, 1958
2,873,057	Friday	Feb. 10, 1959

FOREIGN PATENTS

291,074	Switzerland	May 31, 1953
486,367	Great Britain	June 2, 1938
937,938	Germany	Jan. 19, 1956