April 5, 1949. J. W. COX 2,466,579

MOLDED PULP CARTON

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Fig. 1

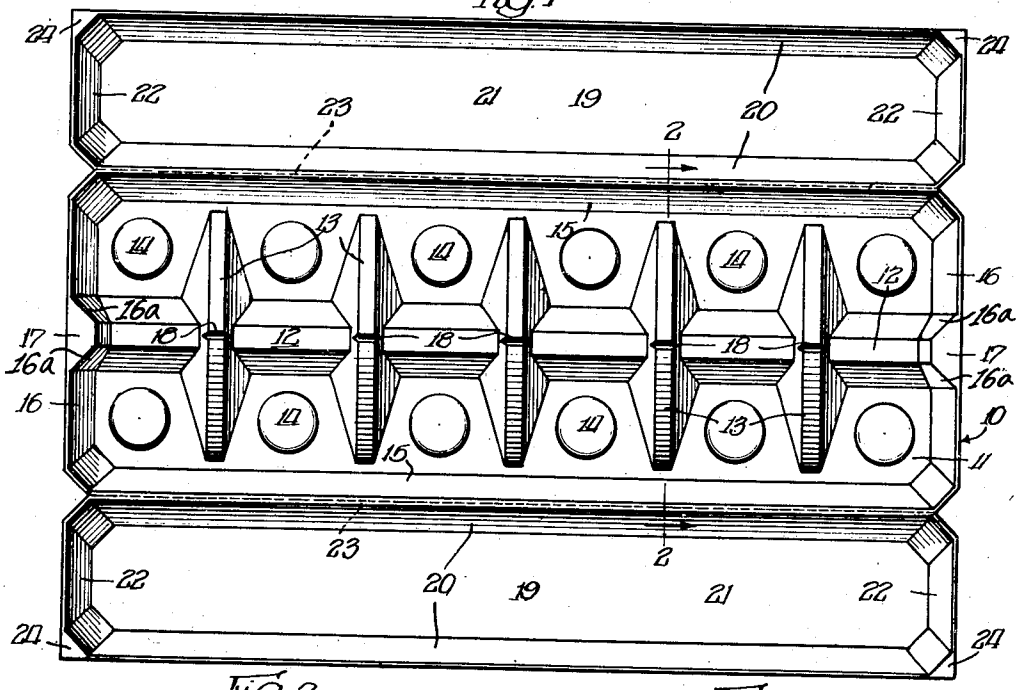


Fig. 2

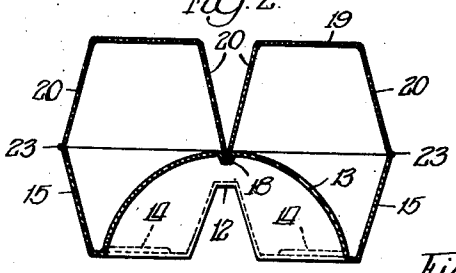


Fig. 4

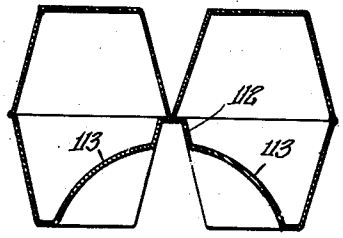
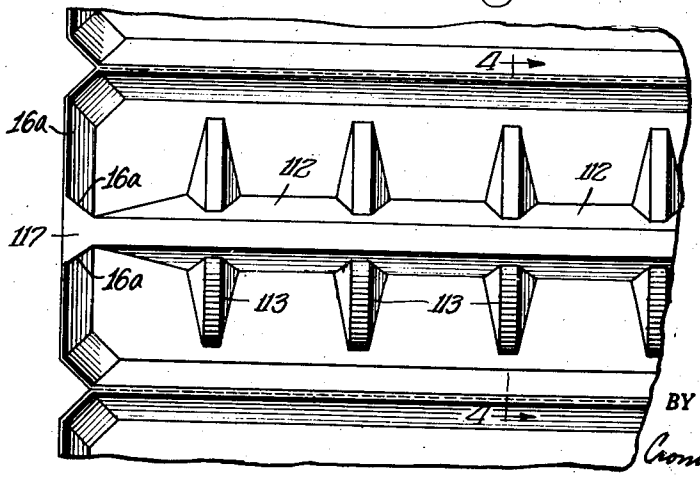


Fig. 3



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MOLDED PULP CARTON

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2 Claims. (Cl. 229—28)

1

The present invention relates to improvements in cartons molded integrally of paper pulp. More particularly, it pertains to cellular egg cartons of the two-by-six type, and one of its objects is the provision of such a carton which may be molded of paper pulp to afford a receptacle having plane bounding walls and egg-receiving compartments partitioned from one another by upstanding projections molded on the receptacle bottom independently of the bounding walls and formed so as to strengthen and rigidify the carton structure as a whole, when it is in open condition as well as when it is closed.

Other objects of the invention are to provide such a carton which may be manufactured economically and which affords extensive plane exterior surfaces that may be conveniently printed with decorative or advertising matter, and which is of symmetrical and well balanced structural appearance, and which will retain eggs of different sizes securely and protect them effectively, and which is of such form and dimensions that it can be packed thirty to a case in egg cases of standard thirty-dozen capacity, and which lends itself conveniently to handling by automatic appliances in the packaging plant and which may be securely fastened in closed condition.

Further objects of the invention will be evident upon a consideration of the following specification and by reference to the accompanying drawing, in which:

Fig. 1 is a top plan view of a cellular molded pulp carton embodying the present invention, shown with the covers in fully open positions;

Fig. 2 is an end elevational view in cross section of the carton of Fig. 1 with the covers closed;

Fig. 3 is a plan view of a portion of a modified form of cellular molded pulp carton embodying the invention, and

Fig. 4 is an end elevational view in cross section of the carton of Fig. 3 with the covers closed.

In Fig. 1 of the drawing there is shown a plan view of an integrally molded carton which comprises a receptacle, designated generally by the reference numeral 10, which is partitioned into two longitudinal rows of egg-receiving compartments by upstanding embossments molded entirely in its bottom wall 11 in such fashion as to form an integral grid made up of longitudinally running elements 12 and transverse elements 13. A shallow raised portion 14 may be formed in the bottom of each compartment to function as a cushion and rest for the end of the egg. The receptacle 10 has longitudinally running side walls 15 that are unbroken and plane and are connected at their ends by end walls 16 into which the grid merges at its ends.

The transverse partition elements 13 are formed as hollow arches which spring from the plane of the bottom wall adjacent the side walls

2

and rise high enough to separate eggs in adjacent compartments and to provide cover rests along the longitudinal median line of the receptacle. The partition elements may be made wide enough at their bottoms to afford eggs of different sizes suitable cushioning support upon their sloping wall portions. By terminating the transverse partition elements 13 adjacent but short of the side boundary walls of the receptacle, the receptacle is afforded requisite stiffening throughout its width while the side walls are enabled to present uninterrupted exterior surfaces which contribute desirable qualities to the appearance of the carton and afford extensive areas which can be conveniently printed.

The longitudinal partition elements 12 may be of less height than the elements 13, but should be high enough to cooperate with the cover walls, as hereinafter described, to afford separators between the eggs in the opposite rows.

It will be observed that this grid construction, in addition to partitioning the receptacle into egg-receiving compartments, constitutes an integral spine-and-rib structure which contributes desirable rigidity to the receptacle both transversely and longitudinally.

The end walls of the receptacle are formed with end boundary portions 16 and re-entrant portions 16a which are in alignment and conjunction with the longitudinal spine of the grid, and the re-entrant areas between wall portions 16a are bridged by gusset-like ledges 17 at the level of the upper margins of the end walls and lying entirely inwardly from the outer margins of the boundary walls. These ledges 17 may be formed as continuations of the top portions of the longitudinal grid elements when they are in the same plane. The transverse partition elements 13 may be provided with narrow depressions 18 extending transversely of their crests.

A pair of cover members 19 is molded integrally with the receptacle, each of a width approximately one-half that of the receptacle and formed to cover a longitudinal row of the egg compartments. The side walls 20 of each cover member converge toward and are connected to each other by a top panel 21, said side walls and top panels being unbroken and plane. The end walls 22 of each cover member connect the side walls and top panels at their ends and converge toward the top panels and at their lower margins are of a contour such as to seat in register on the corresponding end wall portions of the receptacle. One of the side walls of each cover member is hinged at its margin to the top edge of a side wall of the receptacle along the line indicated at 23. The hinging or swinging action may be facilitated by the provision of a score line at this location. At the corner portions adjacent the ends of the free side walls of each cover

members are triangular projections 24 lying in the plane of the lower margins of the cover end walls and located so as to seat on the ledges 17 when the covers are swung to closed positions to cover the respective rows of eggs. When the covers are in such closed positions, marginal portions of their free side walls seat upon the crests of the elements 13, and by forming intermediate portions of those side walls of sufficient depth, parts of them may be caused to enter the depressions 18, into which they may be wedged to contribute a cover-retaining effect. When the covers are in closed positions, portions of their side walls cooperate with the longitudinal partition elements of the receptacle to separate the eggs of opposite rows. The depressions may be omitted so that the cover side walls will seat directly on the tops of the transverse partition elements, but if the depressions are provided, either the transverse partition elements must be higher than the receptacle side walls, or the free cover walls must be deeper than their end walls in order to enter the depressions. The corner projections 24 of the covers come to rest upon the inwardly situated ledges 17, which thus cooperate with the grid to afford the covers rigid support along the longitudinal axis of the carton. The ledges 17 and/or the projections 24 can be provided with a thermoplastic adhesive on their contacting faces, and the carton, after being closed, may be sealed by applying simple heating units of conventional type momentarily to the ledges and projections to activate the adhesive. As an alternative, wire staples or other fastening elements may be seated in or applied to the meeting elements 17 and 24 to secure them to each other.

Referring now to the modification illustrated in Figs. 3 and 4, it will be seen that the grid is molded with its spine or longitudinal element 112 of sufficient height to afford seating support for the covers along the entire length of the receptacle, and that the somewhat lower arched cross partition elements 113 merge into its longitudinal wall portions. The longitudinal element of the grid merges into the end walls at its ends along re-entrant wall portions 16*a*, and its top portion is continuous with the ledges 117.

With respect to the cover members for this carton, it will be understood that they may be the same as the form above described having similar end tabs or corner projections 24 which, when the covers are closed, will seat upon abutments 117. The covers can likewise be held closed by the utilization of an adhesive or staples, and, being connected integrally with the margins of the receptacle's side walls and extending angularly therefrom, the covers serve to stiffen those walls against inward and outward deflection, and by virtue of the angle structure thus formed along both sides of the carton, it is given very effective overall stiffness and stability.

In view of the fact that this construction permits the entire covers and all fastening and reinforcing elements to be located entirely within the area defined by the outer boundary walls of the egg compartments, all the walls of the carton may be molded of sufficient thickness to give it great overall stiffness and rigidity, while allowing local cushioning support for the eggs, all this while holding the overall dimensions of the carton within such limits as to permit them to be packed properly, thirty to the case, in standard egg cases of thirty-dozen capacity. Moreover, the unbroken plane surfaces of the receptacle side walls give the carton a finished and well balanced appearance which is indicative of its inherent strength and which lends itself conveniently to decorative or advertisemental printing on the exterior surfaces.

It will be recognized that many changes may be made in the invention as described herein without departing from the scope of the invention as defined in the appended claims.

I claim:

1. A molded egg carton including a bottom section having a lower egg supporting portion and side and end walls extending angularly therefrom, longitudinal and transverse compartmentizing means subdividing the carton into a plurality of rows of cells, said compartmentizing means comprising longitudinal partition means and transverse partition members extending from points adjacent the top of said longitudinal partition means in a continuous inclination downwardly and outwardly to junctions with the bottom section, said partition members substantially stiffening and rigidifying the bottom section, and cover members hingedly connected to opposite side walls of said bottom section, the longitudinal partition means and transverse partition members terminating at different elevations with respect to said egg supporting portion and the higher thereof having longitudinally extending depressions formed therein of width approximating the combined thickness of the free edges of said cover member for the reception of said free edges.

2. A cellular egg carton molded to form a receptacle having side and end walls connected by a bottom which is formed with a grid-like compartmentizing and stiffening structure comprising transversely extending elements in the form of arches springing from the bottom adjacent the side walls and connected by longitudinal elements disposed approximately midway between the receptacle side walls, said elements serving to partition the receptacle into two rows of egg compartments, and two cover members hinged respectively to the upper margins of the opposite side walls of the receptacle and swingable to position to cover one-half the width of the carton, said cover members having wall portions arranged to seat on and be vertically braced by certain of said grid elements approximately midway between said side walls, certain of the grid elements being provided in their upper surfaces with narrow depressions of width approximating the combined thickness of side wall portions of the cover to receive and hold said portions with wedging action.

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