

Aug. 3, 1948.

J. W. COX

2,446,264

MOLDED PULP CARTON

Filed Sept. 20, 1943

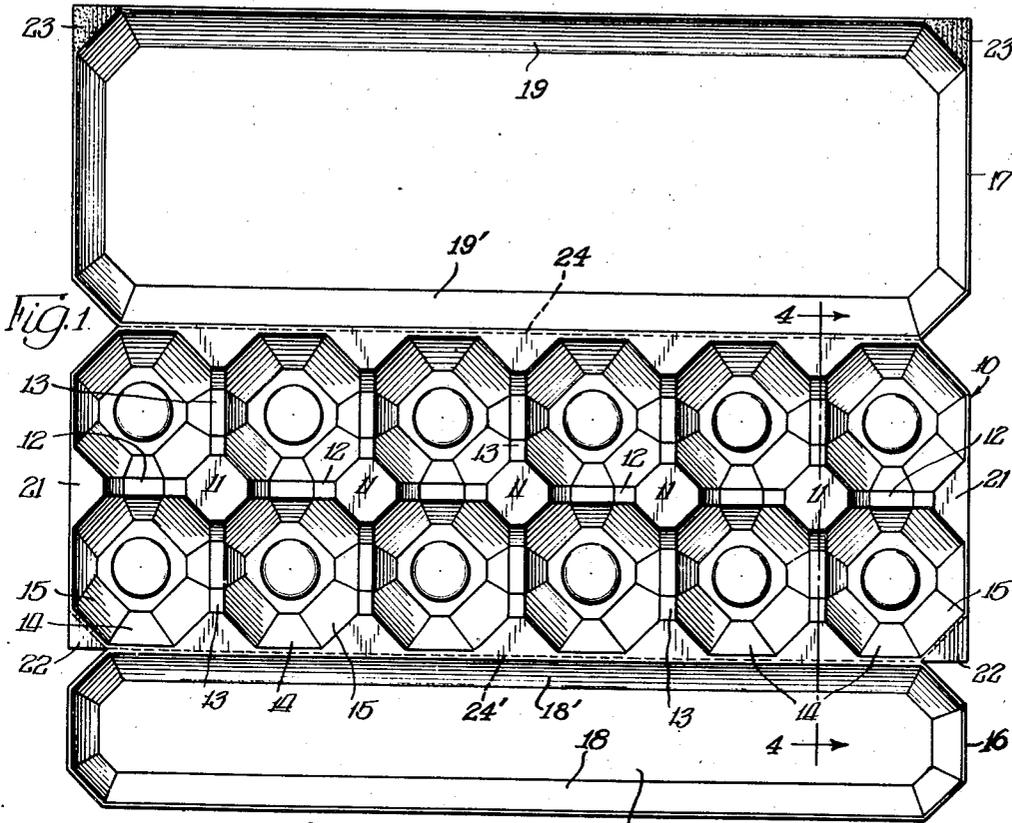


Fig. 1

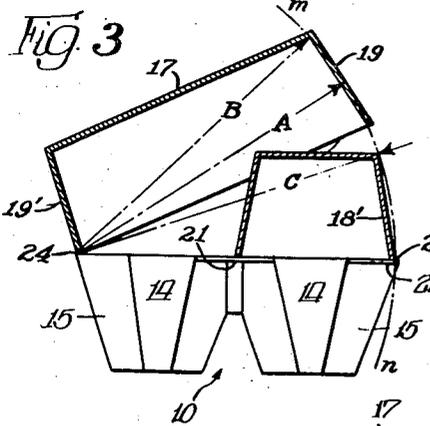


Fig. 3

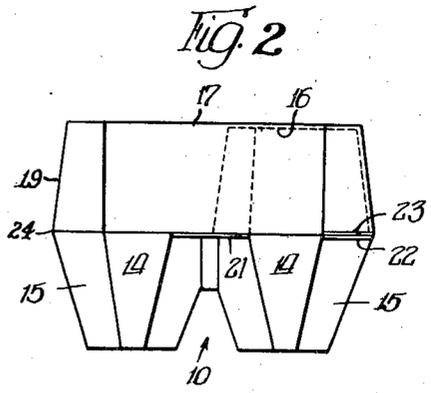


Fig. 2

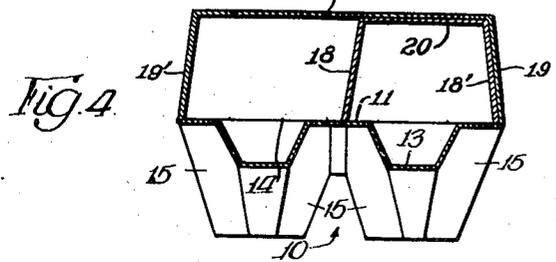


Fig. 4

INVENTOR.
John W. Cox,
BY
Cromwell, Greiby Warden
Attys.

UNITED STATES PATENT OFFICE

2,446,264

MOLDED PULP CARTON

John W. Cox, Chicago, Ill., assignor, by mesne assignments, to Shellmar Products Corporation, Chicago, Ill., a corporation of Delaware

Application September 20, 1943, Serial No. 503,028

9 Claims. (Cl. 229—28)

1

The present invention relates to improvements in the construction of cellular molded pulp cartons, particularly egg cartons, and resides in an improvement whereby a novel self-locking closure is provided by interengaging cover members without involving provision of special locking members as such.

More specifically, it is an object of the invention to provide a carton of the molded paper type having an inner or single row cover and an outer or double row cover, hinged respectively to opposite boundary walls of a receptacle which is formed with two or more rows of egg cells, the inner cover adapted to house or close a longitudinal row of cells and lending vertical support to the outer cover which houses or covers the remaining row or rows of cells and interlockingly engages the inner cover in such fashion as to hold the covers against swinging open, thus to retain and give full protection to the contained eggs.

Another object of the invention is the provision of a molded paper pulp carton that can be packed with proper fit in standard egg cases of thirty dozen capacity, which will accommodate large size eggs, and which is adaptable to machine handling.

Other 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 illustrating a molded pulp carton embodying the present invention with the covers in fully open positions;

Fig. 2 is an end elevational view of the carton shown in Fig. 1 with the covers in fully closed positions;

Fig. 3 is a diagrammatic end view, partly in section, showing the inner cover in closed position and the outer cover swung toward closed position, and serving to illustrate how the covers are adapted to interengage to hold themselves closed; and

Fig. 4 is a transverse elevational view taken through a closed carton such as that shown in Fig. 2, on approximately the line 4—4 of Fig. 1.

In Fig. 1 there is shown a carton such as may be molded of paper pulp to provide a receptacle designated generally by reference numeral 10, same being compartmented to afford a two-by-six arrangement of cells of octagonal shape. These cells are in part formed by a plurality of centrally located upstanding separator or support members 11. Longitudinal partition elements 12 extend between adjacent members 11, and transverse partition elements 13 extend between the

2

members 11 and the front and rear side walls of the receptacle. The side walls of the receptacle which constitute also the outer or boundary walls of the cells, are formed of spaced outermost wall sections 14 connected by interposed pairs of convergent diagonal wall sections 15 which merge into the elements 13. The upstanding separator elements 11 connected by the elements 12 and 13 together with the side boundary wall sections 14 and 15 and similar series of wall sections at the ends of the receptacle and along its longitudinal medial portion provide two longitudinal rows of egg-receiving compartments in the receptacle 10.

The carton is provided with an inner cover 16 and an outer cover 17. The inner cover has upwardly and inwardly inclined plane inner and outer side walls 18 and 18' connected by a top panel 20, and the outer cover has similarly inclined inner and outer side walls 19 and 19' connected by a plane top panel. The side walls and top panel of each cover are connected by suitably contoured end walls adapted to close upon corresponding end walls of the receptacle. Each cover is hinged along the bottom edge of its outer side wall to the upper edge of a receptacle side wall as indicated by the respective dotted lines 24 and 24'. The width of the inner cover is such as to span only a portion of the width of the receptacle, while the width of the outer cover is sufficient to span the entire width of the receptacle, including the inner cover 16 when the latter is in its closed position. As shown in Fig. 4, when the inner cover is in closed position, it covers the adjacent row of egg-receiving compartments of the receptacle to house eggs therein, and is supported in this position by the seating of its inner side wall 18 upon the upstanding support members 11 as well as upon abutment ledges 21 at the ends of the receptacle. These supports 11 and abutments 21 are all entirely within the outer confines or boundary wall surfaces of the receptacle.

When in closed position the outer cover 17 seats upon the closed inner cover 16 in such manner that engagement of the two covers has a self-locking effect. By reference to Fig. 3, it will be seen that if the distance "A" is less than the radial distance "B," and the distance "C" is approximately the same as "B," the outer cover member must be forced in order to move its inner side wall 19 into closed position past the outer upper corner of the closed inner cover member 16. This is possible because the material has more or less resilient quality. Accordingly, the

3

construction produces a sort of snap-on effect and a self-locking cover. This is a particular feature of the invention.

Referring once again to the receptacle 10, there are ledge-like extensions 22 provided at the upper corner portions of the side and end walls and these additionally support the closed outer cover and supplement the support it receives from the vertically braced inner cover. It will further be observed that the outer cover 17 has corner projections 23 which, when the cover is in closed position, will rest upon and register with the projections 22. By means of this arrangement the outer cover receives effective support against crushing pressures, and, moreover, it may be fastened in closed position, either by a suitable adhesive applied to one or both the contacting faces of the extensions 22 and projections 23, or by any other suitable means, such as, for example, staples or clips seated in or engaged with those elements.

In addition to the self-locking feature of the interfitting cover sections, this type of carton has certain other advantages. For example, there is provided an unbroken top surface for printing as well as a cover support along the center or other intermediate portion of the carton. The structure as a whole has a desirable overall stiffness, which is contributed in large measure by the provision of the dished cover members hinged along the margins of the respective longitudinal boundary walls and having side walls extending inwardly and upwardly in angular relationship to the receptacle walls. In addition, both covers can readily be printed to enhance the already attractive appearance of such a carton. Furthermore, the carton lends itself to use with automatic equipment for closing and printing, and inasmuch as it has no portions projecting or overhanging beyond the outermost cell boundary walls, the cartons may be placed side by side in the egg cases without loss of space, and thus two-by-six cartons of this construction may be used in standard egg cases of thirty-dozen capacity to take a full complement of eggs of the largest grade size.

It will be recognized that this interlocking cover construction may be employed in cartons having more than two rows of compartments, and that many changes may be made in the embodiments described herein without departing from the scope of the invention as defined in the appended claims.

I claim:

1. A cellular carton molded to provide a generally rectangular receptacle having side walls and end walls all connected by a bottom, the area within the receptacle being apportioned off into a plurality of collaterally disposed rows of compartments and including support members extending upwardly from the bottom between some of the compartments, a trough-like inner cover hinged along the upper margin of one of the side walls and of transverse width less than the overall receptacle width, said cover being swingable over the receptacle into covering relationship with a row of the compartments and having means engaging some of the support members between the receptacle side walls for support, and a trough-like outer cover of width substantially greater than the inner cover width hinged along the upper margin of the opposite side wall and swingable over the receptacle into covering relationship with the same and the closed inner cover.

4

2. A cellular carton as specified in claim 1 and wherein the inner and outer covers have interengageable portions which have interfitting engagement when the covers are in closed positions to retain the outer cover against swinging.

3. A cellular carton as specified in claim 1 and wherein the outer cover has seating support on the inner cover when they are in closed positions, and said covers have interengageable portions which have interfitting engagement when the covers are in closed positions to retain the outer cover against swinging relative to the inner cover.

4. A cellular carton as specified in claim 1 and wherein each cover has a pair of side walls connected by and extending in converging relationship to a top panel and each cover is hinged at the bottom of one of its side walls to the associated side wall of the receptacle in relationship such that the hinged side walls of the covers extend upwardly and inwardly from their hinge lines when the covers are in closed positions.

5. A cellular carton as specified in claim 1 and wherein each cover has a pair of side walls connected by and extending in converging relationship to a top panel and each cover is hinged at the bottom of one of its side walls to the associated side wall of the receptacle in relationship such that the hinged side walls of the covers extend upwardly and inwardly from their hinge lines when the covers are in closed positions, and the free side wall of the outer cover is arranged to engage retentively the hinged side wall of the inner cover.

6. A cellular carton as specified in claim 1 and wherein each cover has a pair of side walls connected by and extending in converging relationship to a top panel and each cover is hinged at the bottom of one of its side walls to the associated side wall of the receptacle in relationship such that the hinged side walls of the covers extend upwardly and inwardly from their hinge lines when the covers are in closed positions, and the radius length from the hinge of the outer cover to a mid portion of its free side wall is less than the distance from said hinge to the upper end of the hinged side wall of the closed inner cover.

7. A cellular carton comprising a receptacle having pairs of side and end walls connected by a bottom, an inner member having an upwardly extending wall hinged to one of the receptacle side walls and swingable inwardly of the carton, said member having integral, inwardly extending means engageable with said receptacle substantially inwardly of the side wall of said receptacle to which it is hinged, in the direction toward the other receptacle side wall, to brace the member and prevent inward swinging of said inner member beyond a predetermined position relative to said receptacle, and an outer cover member having side walls, one of which is hinged to said other of the receptacle side walls and swingable inwardly of the carton to bring said outer cover member into covering relation to the receptacle and inner member, the other side wall of said outer member frictionally and retentively engaging the upwardly extending wall of said inner member in said predetermined, braced position of the latter.

8. A cellular carton comprising a receptacle having pairs of side and end walls connected by a bottom, an inner member having an upwardly extending wall hinged to one of the receptacle side walls and swingable inwardly of the carton, said member having integral, inwardly extending means engageable with said receptacle substan-

5

tially inwardly of the side wall of said receptacle to which it is hinged, in the direction toward the other receptacle side wall, to brace the member and prevent inward swinging of said inner member beyond a predetermined position relative to said receptacle, and an outer cover member having side walls, one of which is hinged to said other of the receptacle side walls and swingable inwardly of the carton to bring said outer cover member into covering relation to the receptacle and inner member, the other side wall of said outer member frictionally and retentively engaging the upwardly extending wall of said inner member in said predetermined, braced position of the latter, the radius length from the hinge of the outer cover to a mid point on its opposite side wall, with reference to the vertical dimension of the latter, being less than the distance from said last named hinge to the upper end of the hinged inner member wall.

9. A cellular carton comprising a receptacle having pairs of side and end walls connected by a bottom, an inner member having an upwardly extending wall hinged to one of the receptacle side walls and swingable inwardly of the carton, said member having integral, inwardly extending means engageable with said receptacle substantially inwardly of the side wall of said receptacle

6

to which it is hinged, in the direction toward the other receptacle side wall, to brace the member and prevent inward swinging of said inner member beyond a predetermined position relative to said receptacle, and an outer cover member having side walls, one of which is hinged to said other of the receptacle side walls and swingable inwardly of the carton to bring said outer cover member into covering relation to the receptacle and inner member, said inner and outer members extending substantially of the length of the carton in adjacent relation to one another to brace and substantially strengthen the carton at that point.

JOHN W. COX.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
D. 95,291	Sherman	Apr. 16, 1935
1,975,128	Sherman	Oct. 2, 1934
1,975,129	Sherman	Oct. 2, 1934
2,088,603	Kronenberger	Aug. 3, 1937
2,093,280	Koppelman	Sept. 14, 1937
2,160,893	Newsom	June 6, 1939