Dec. 23, 1958 A. W. VAN DYKE 2,865,547

MOLDED PULP CARTON

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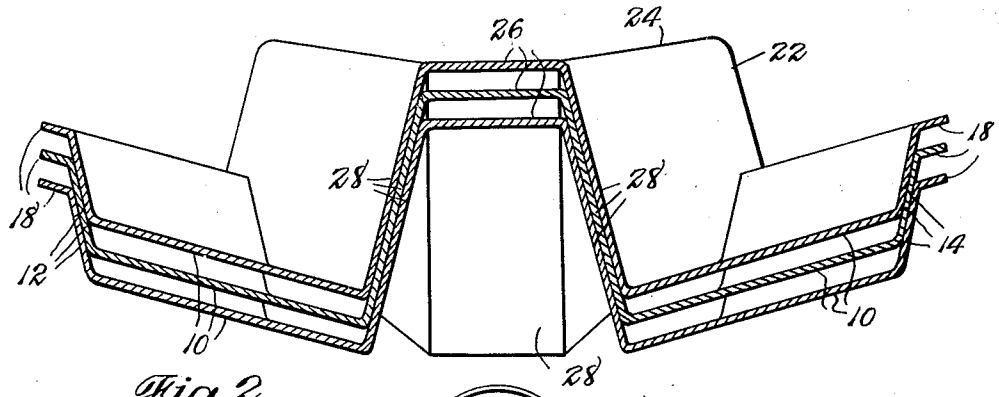


Fig. 2.

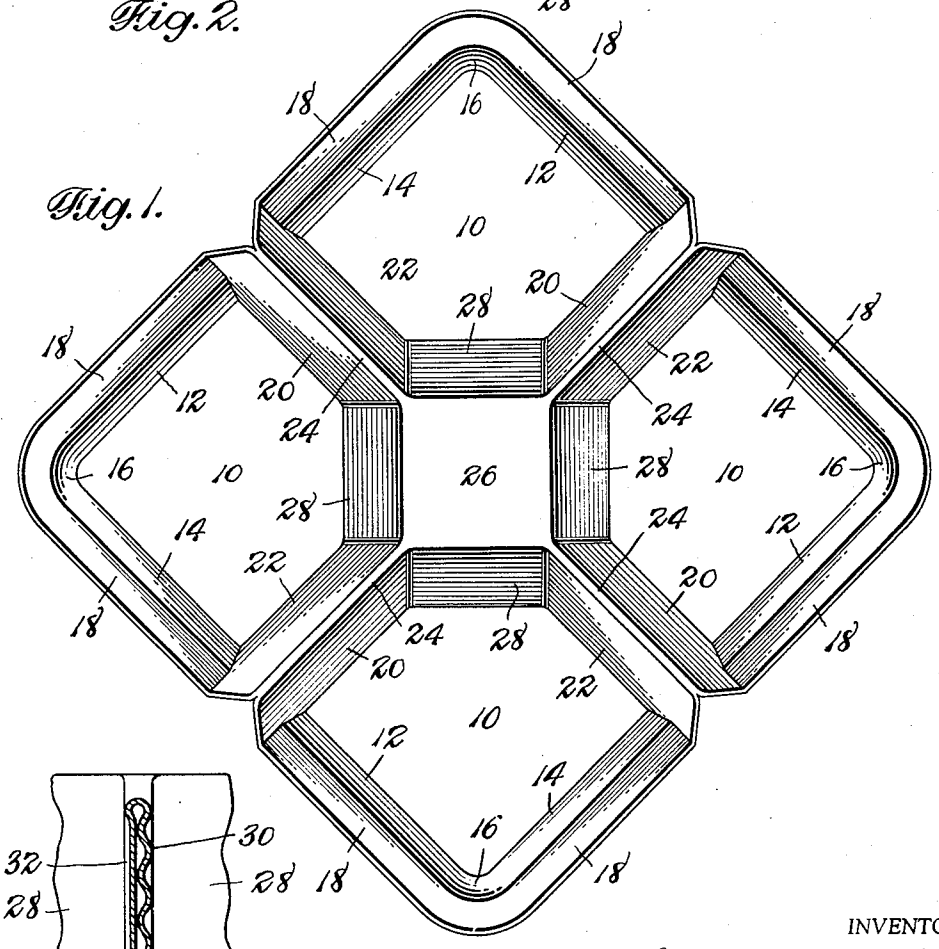


Fig. 1.

Fig. 8.

INVENTOR

Arthur W. Van Dyke,

BY Karl W. Flocks

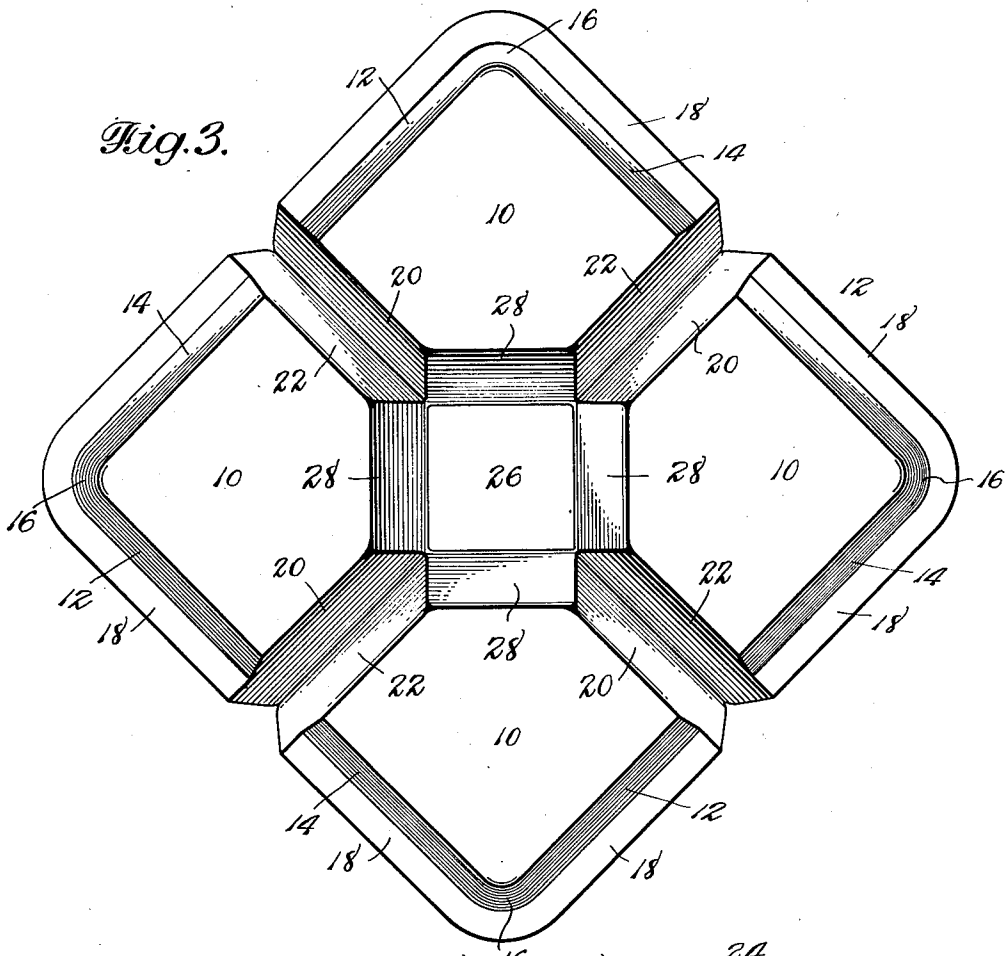
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Fig. 3.



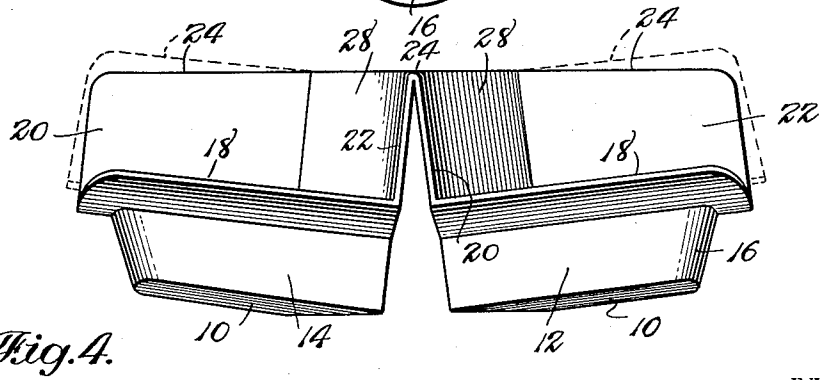


Fig. 4.

INVENTOR
Arthur W. Van Dyke,

BY Karl W. Flocks
ATTORNEY

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MOLDED PULP CARTON

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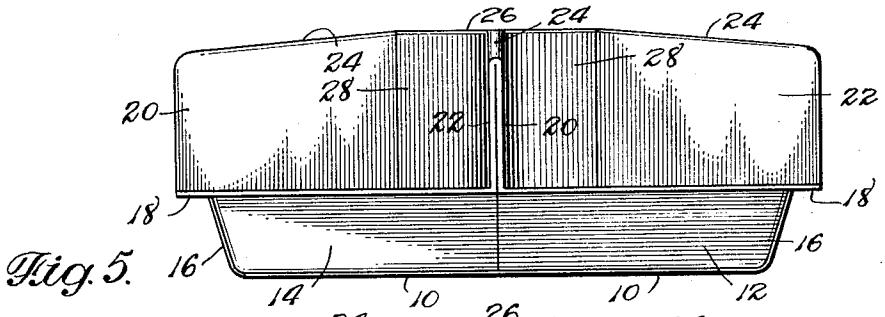


Fig. 5.

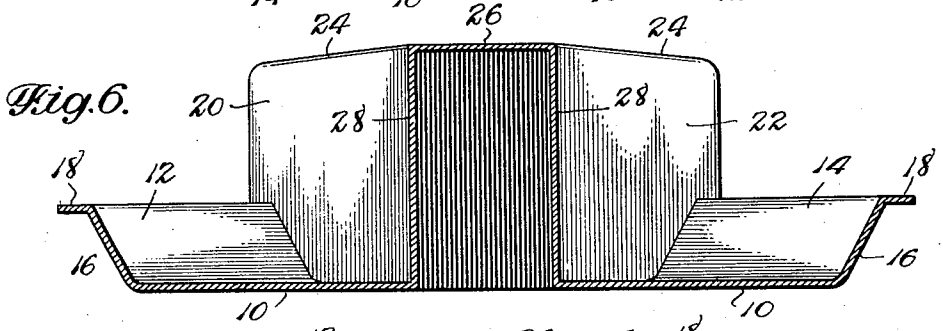


Fig. 6.

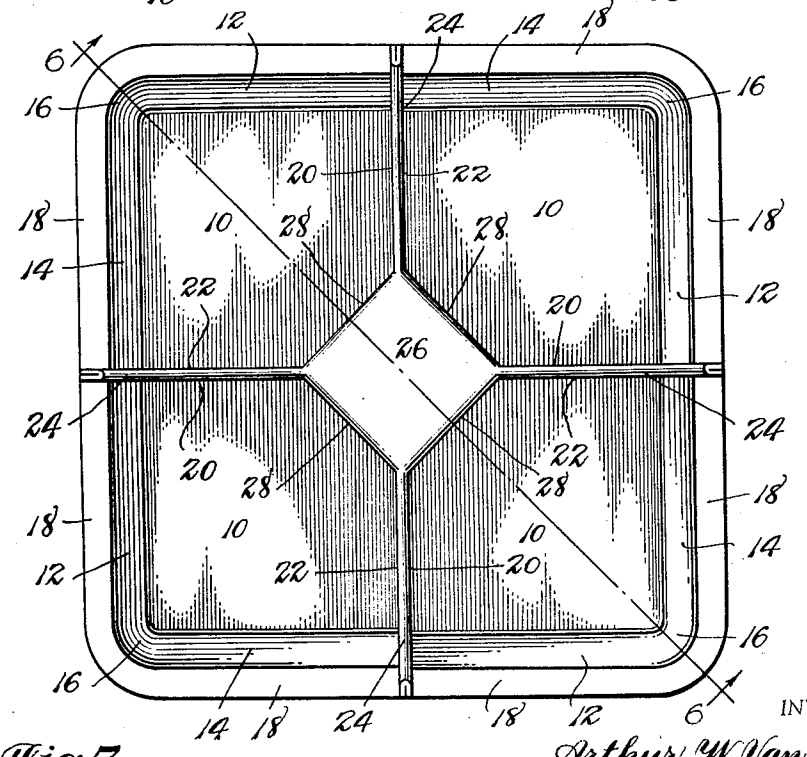


Fig. 7.

INVENTOR

Arthur W. Van Dyke

BY Karl W. Flocks

ATTORNEY

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2,865,547

MOLDED PULP CARTON

Arthur W. Van Dyke, Elizabeth, N. J., assignor to Diamond Gardner Corporation, a corporation of Delaware

Application January 19, 1954, Serial No. 404,831

6 Claims. (Cl. 229—2.5)

The present invention relates to molded pulp cartons. More particularly, the present invention relates to molded pulp cartons that are adapted to be utilized for the packaging and display of food products, glass products, or the like.

Paper cartons have been in general usage for some time heretofore in the art of displaying food products and are desirable from the point of view of shipping, particularly since the paper carton may be folded to a flat position. However, paper cartons offer the inconvenience of assembling and, moreover, do not provide the necessary protection for frangible products, such as tomatoes, eggs, etc. Moreover, paper cartons are not considered to be good advertisers of the article to be sold, tending to cause the good features of the food article to be overlooked rather than enhanced.

The molded pulp type display carton has been coming into usage more and more in recent years for displaying food products and has been found to be particularly advantageous for displaying or packaging food products, such as, for example, pies, cakes, eggs, etc. Prior to the instant invention heretofore known molded pulp cartons were generally molded in the configuration required for receiving the article to be displayed or packaged and, in the case of egg cartons were provided with a plurality of individual cells for receiving the eggs therein. The molded pulp cartons have been found advantageous in use since they are economical to manufacture, provide a relatively rigid structure for shipping fragile food products such as eggs and can be molded into any configuration desired for conveniently displaying food products to their best advantage. However, the heretofore known molded pulp cartons have also been found to be undesirable in certain respects, which have prevented their wider spread use in the food industry. Heretofore the molded pulp cartons have been molded in one position, that position being designed for a particular food product, for example, meat, pies, cakes, or eggs. Since the cartons must be shipped to the user in relatively large quantities, the amount of cartons delivered is materially decreased due to the fact that the cartons must be stacked one on the other. This creates a problem in shipping and furthermore increases the cost of the carton. For example, many of the molded pulp cartons used heretofore must be stacked for shipment one on top of the other since the rigid cellular structure cannot be folded or compressed in any manner. Consequently, the use of the molded cellular carton for displaying food products has not been found practical heretofore mainly because such a carton has created a space problem both in shipping and handling.

It is therefore an object of the present invention to provide a molded pulp carton that is molded in a position for shipping and is subsequently moved to a display position.

Another object of the present invention is to provide a molded pulp carton that may be nested for shipping purposes.

Still another object of the present invention is to provide a molded pulp cellular carton that may be nested with similar cellular cartons for shipping purposes.

Still another object of the present invention is to provide a molded pulp carton that is formed with a plurality of cells for receiving food articles for display therein.

Still another object of the present invention is to provide a molded pulp carton having a plurality of walls, the carton being formed on a single mold and stripped therefrom with the walls disposed in an open position, thereby enabling the carton to be nested with other similar molded cartons for shipping.

Still another object of the present invention is to provide a molded pulp carton having a plurality of walls, the walls being disposed parallel to the vertical axis of the carton when the carton is located in the display position.

Still another object of the present invention is to mold a cellular carton with the inner walls thereof divergent to the vertical axis of the carton thereby providing for nesting of the carton for shipping.

Still another object of the present invention is to provide a molded cellular carton that is provided with inner walls which are positioned adjacent one another to define an upper edge, the upper edge being inclined toward the center of the carton in the molded position, thereby retaining the inner walls in a divergent position with respect to the vertical axis of the carton.

Still another object of the present invention is to provide a molded cellular carton having inner walls defining upper edges, the upper edges being moved through a neutral zone to a display position, whereby they are inclined away from the center of the carton to securely retain the inner walls of the carton in a vertical or display position.

Other objects and the nature and advantages of the instant invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is a plan view of the molded cellular carton embodied in the present invention illustrating the carton in the molded or shipping position;

Fig. 2 is a vertical sectional view of a plurality of cartons shown in nested relation for shipping purposes;

Fig. 3 is a bottom plan view of the molded cellular carton shown in Figs. 1 and 2;

Fig. 4 is an elevational view of the carton embodied herein illustrating in doted lines the position of the upper edges of the inner walls in the molded or shipping position and showing in full lines the carton located in a neutral position just prior to being moved to the display position;

Fig. 5 is an elevational view illustrating the carton in the closed or display position;

Fig. 6 is a vertical view of the closed carton taken along lines 6—6 in Fig. 7;

Fig. 7 is a top plan view of the molded cellular carton as seen in the display position; and

Fig. 8 is a vertical sectional view of a portion of a carton illustrating a modification of the structure of the inner walls.

Generally, the present invention comprises a molded cellular pulp carton that is molded in an open position, wherein the inner walls defining the cells are formed divergent with respect to the vertical axis of the carton. Each of the bottom walls of the cells, in the molded position is formed in a separate plane and this, combined with the divergent position of the inner walls, provides for nesting of a plurality of cartons for shipping purposes.

The top edges of the inner walls are inclined away from a center section of the carton in the molded position but are adapted to be moved through a neutral zone or horizontal position to a display position. As the inner wall top edges move through the neutral zone, a snap action is effected, which brings the adjacent inner walls into abutting and vertical relation. In this closed or display position, the inner wall top edges are inclined downwardly and away from the carton center section and thereby act to positively retain the inner walls in the display position. With the carton arranged in the display position, a food article or the like such as, for example, a tomato, may be placed in each cell and an overwrap secured to the bottom of the carton and wrapped around the open cell portion completely enclosing the food articles and thereby providing an attractive and sanitary display package.

Referring now to the drawings, and particularly Figs. 1, 2 and 3, the carton embodied in the present invention is illustrated as it is molded in the open or nesting position and includes a plurality of cells, each including a bottom wall **10**. Although the present invention illustrates a four-celled carton, it is apparent that any number of cells could be formed in a single carton. As shown in Figs. 2 and 4, the bottom walls **10** are each formed in a separate plane when the carton is initially molded. Integrally joined to the bottom wall **10** and forming the outside edge of each cell are shortened outer walls **12** and **14**, the outer walls **12**, **14** being molded outwardly divergent with respect to the bottom wall **10**. The outer walls **12** and **14** are joined at a rounded corner portion **16**, the corner portion forming the corner of the carton. Joined to the divergent outer walls **12**, **14** and extending outwardly therefrom is a flange portion **18** which not only provides a gripping portion for stripping the carton from the molds, but provides convenient lifting of the carton when in use. Joined to the bottom wall **10** and outer wall **12** and extending upwardly therefrom substantially above the outer wall **12** is an inner wall **20**. Similarly joined to the bottom wall **10** and outer wall **14** and extending upwardly therefrom substantially above the outer wall **14** is an inner wall **22**. As illustrated in Figs. 1 and 2, the inner walls **20**, **22** are located (as molded) in perpendicular relation with respect to the bottom wall **10** but are positioned in divergent relation with respect to the vertical axis of the carton. Each inner wall **20** is located adjacent an inner wall **22** of the adjacent cell and is hingedly connected thereto by an upper edge **24**. As shown in Fig. 2, the upper edges **24** are inclined inwardly toward the center of the carton for a purpose to be described hereinafter.

In order to form a more rigid carton and to complete the cellular configuration thereof, a center post arrangement is provided and includes a center post top wall **26** which is square in configuration and is disposed in a horizontal plane. If the carton is formed with a greater or lesser number of cells than illustrated, then the configuration of the center post will vary accordingly. Hingedly depending from each side of the square top wall **26** is a center post side wall **28** which, as shown in Figs. 1 and 2, is molded angularly with respect to the top wall. Each center post side wall **28** is also integrally joined to its adjacent inner walls **20**, **22** and to the bottom wall **10** while the square top wall **26** is movably connected at the corners thereof to the upper edges **24**, thereby completing the cell structure of each cellular unit.

As described hereinabove, the cellular carton embodied in the present invention is molded from pulp material and is stripped from the molding dies in the open or shipping position, which position is illustrated in Figs. 1, 2 and 3. By molding the carton in the open position, the stripping operation is greatly facilitated since the carton walls are located in a divergent relation. Moreover, the cartons, as molded, may be nested together for shipping, as shown in Fig. 2, thereby eliminating a space problem which is extremely desirable from an economical point of view.

Although only three cartons are illustrated in the nested position in Fig. 2, it is understood that as many cartons as practically possible may be nested together as a complete bundle when the cartons are actually packed for shipment.

The description of the carton as related above has been directed to the manner in which the carton is actually molded and to the configuration of the molded carton. It is apparent that the carton cannot be utilized for display purposes in the molded position and, therefore, must be moved to the closed or display position. Referring now to Fig. 4, the carton is shown being moved from the molded or shipping position to the closed or display position. As illustrated, the dotted line position of the inner walls **20**, **22** indicates the molded position of the carton. The upper edges **24** are therefore inclined toward the center of the carton as described hereinabove. When the carton is advanced from the molded position toward the closed or display position, a neutral zone is reached, wherein the upper edges **24** are approximately horizontal. Up to this point, the movement of the cell walls has been forced, the upper edges **24** in combination with the inner walls **20**, **22** resisting inner movement due to the compression forces set up in the inner wall structure. As the top edges **24** are moved through the neutral zone, they approach a point wherein they slope outwardly away from the center of the carton. The inner walls are then positively moved into engagement in abutting relation and assume a vertical position, as illustrated in Figs. 5–7. Actually, a "snap action" of the inner walls will be effected when the top edges **24** move below the neutral zone and thus the adjacent inner walls will be forced into engagement with one another, thereby moving the bottom walls **10** into a horizontal position and in perpendicular relation with respect to the inner walls **20**, **22** and outer post side walls **28**. As shown in Figs. 5–7, the cellular arrangement of the carton in the display position is complete, the inner walls **20**, **22** and the center post side walls **28** being located in a vertical position and the bottom wall **10** being located horizontally and parallel with the center post top wall **26**. With the carton located in the display position shown in Figs. 5–7, articles of food or the like may be inserted in each cell for the purposes of display. If the carton complete with article displayed is to be offered for sale, a convenient overwrap may be secured to the underside of the carton and wrapped around the top of the article disposed in the cellular portion of the carton and then secured to the carton by some convenient means, such as an adhesive. The complete carton then forms an attractive display unit, providing a rigid structure and thereby enabling the article to be displayed without fear of abusive handling. Moreover, the article is displayed to its best advantage.

Referring now to Fig. 8, a modification of the present invention is illustrated and comprises a modified inner wall structure. The modified inner wall structure is designed to render the inner walls more resistant to objectionable handling and includes an inner wall **30** which is formed with a plurality of horizontally extending undulations or corrugations. An adjacent inner wall **32** is formed with a plurality of vertically extending undulations or corrugations and thereby cooperates with the horizontal corrugations to provide a buffer zone for preventing the breakage of frangible objects to be displayed in the carton.

It is apparent from the description of the invention that the molded cellular carton embodied herein is designed to offer an economical display carton that may be molded in a simple manner. Moreover, a plurality of cartons may be conveniently stacked in nested relation for shipping, and the carton when utilized for dis-

play is quickly and simply moved to the display position. The center post not only provides a rigid carton construction but, in addition, serves as a supporting member when filled cartons are stacked one on the other in the display position.

It is also contemplated forming the cell walls in corrugated sheets which would relieve pressures exerted on the carton due to stacking or handling. It is apparent therefore that the present invention provides that the displayed article is not only fully protected from abusive handling, but, in addition, is displayed to its fullest advantage.

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. A molded pulp carton comprising a top wall and at least three like cells hingedly joined to said top wall, each of said cells including a bottom wall and inner walls, said inner walls being disposed in divergent relation and hingedly joined to an adjacent inner wall of an adjacent cell, said bottom walls being positioned in different planes related to each other in such manner that, when said walls are hingedly moved to bring the adjacent inner walls into contacting relation, the bottom walls are in coplanar relation.

2. A molded pulp carton comprising a top wall and at least three like cells hingedly joined to said top wall, each of said cells including a bottom wall and inner walls and each of said cells being hingedly joined to an adjacent cell by the top edge of the adjacent inner walls thereof, said adjacent inner walls being molded in diverging relation and the bottom walls being molded in different planes, said inner walls of each cell being substantially perpendicular to the bottom wall thereof, wherein said walls are adapted to be hingedly moved to bring the adjacent inner walls into contacting relation and the bottom walls into coplanar relation.

3. A molded pulp carton comprising a top polygonal wall and a plurality of at least three like cells hingedly joined to said top wall, each of said cells including a bottom wall and inner walls and each of said cells being hingedly joined to an adjacent cell along the top edge of the adjacent inner walls, said adjacent inner walls being normally in diverging relation and the bottom walls being in different planes and sloping inwardly, said inner walls of each cell being substantially perpendicular to the bottom wall thereof, wherein said walls are adapted to hinge downwardly and bring the adjacent inner walls into contacting relation and the bottom walls into coplanar relation.

4. A molded pulp article comprising a multi-cell carton having a center post formed by one wall of each cell, each cell including a bottom wall and inner walls on each side of the said one wall, the inner walls of each cell being hingedly joined to the inner wall of an adjacent cell at the upper edge thereof only, said bottom walls being molded in independent inclined planes and said inner walls being molded in different planes and in divergent relation with respect to the vertical axis of said carton, said cells being rotatable with respect to said center post to locate said cellular bottom walls in coplanar relation and the hingedly connected inner walls in abutting relation with each other.

5. A molded pulp article as set forth in claim 4 wherein one of said inner walls is formed with corrugations and the adjacent wall is formed with oppositely extending corrugations.

6. A molded pulp article comprising a multi-cell carton having a center post formed by one wall of each cell, each cell including a bottom wall and inner walls, on each side of the said one wall, the inner walls of each cell being hingedly joined to the inner wall of an adjacent cell at the upper edge thereof only, said bottom walls being molded in independent inclined planes and said inner walls being molded in divergent relation with respect to the vertical axis of said carton, the upper edge of said adjacent cells sloping inwardly toward said center post, said cells being rotatable with respect to said center post to locate said cellular bottom walls in coplanar relation and the hingedly connected inner walls in abutting relation with each other whereby the upper edge of said adjacent cells slope outwardly away from said center post.

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