

April 1, 1952

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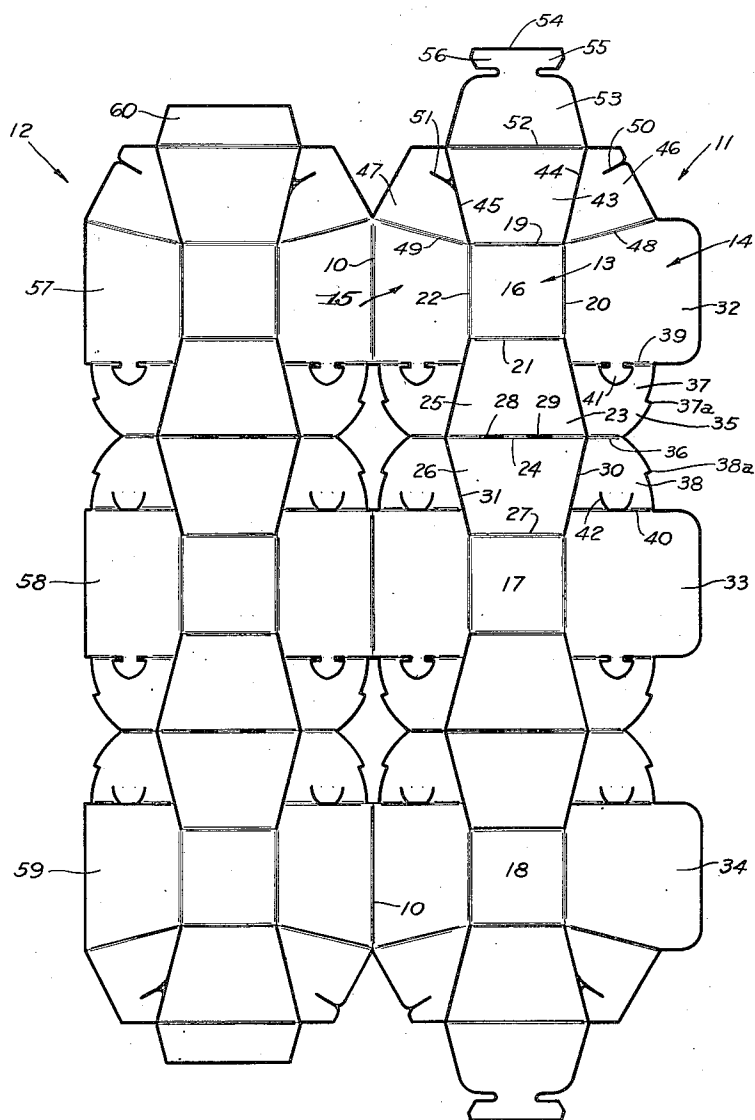
2,591,548

CELLULAR CUSHIONED CONTAINER

Filed June 2, 1947

4 Sheets-Sheet 1

Fig. 1.



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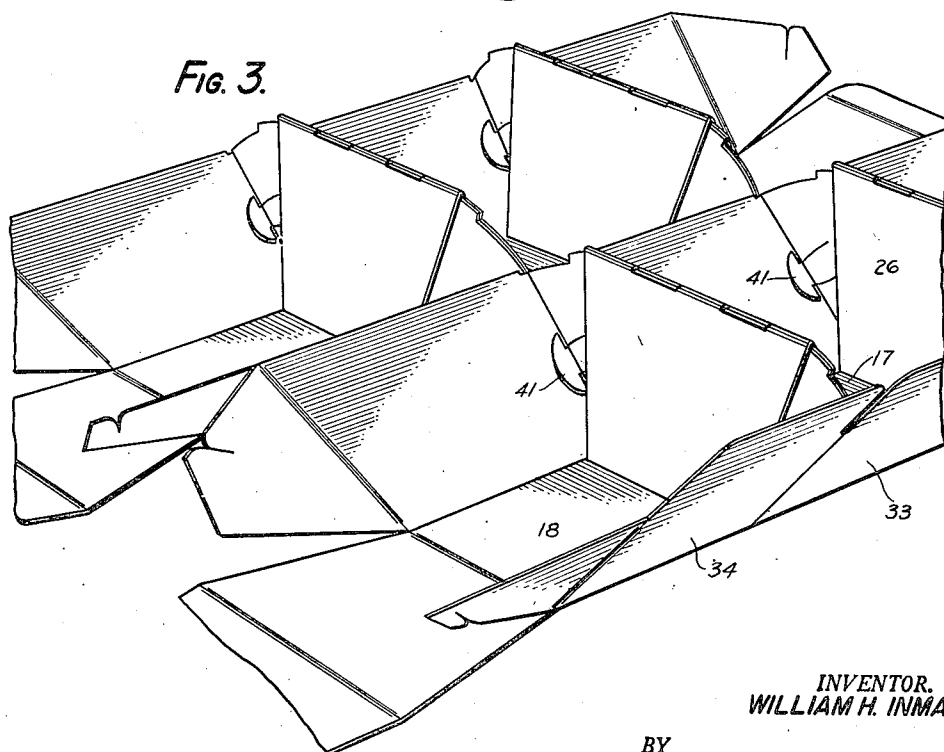
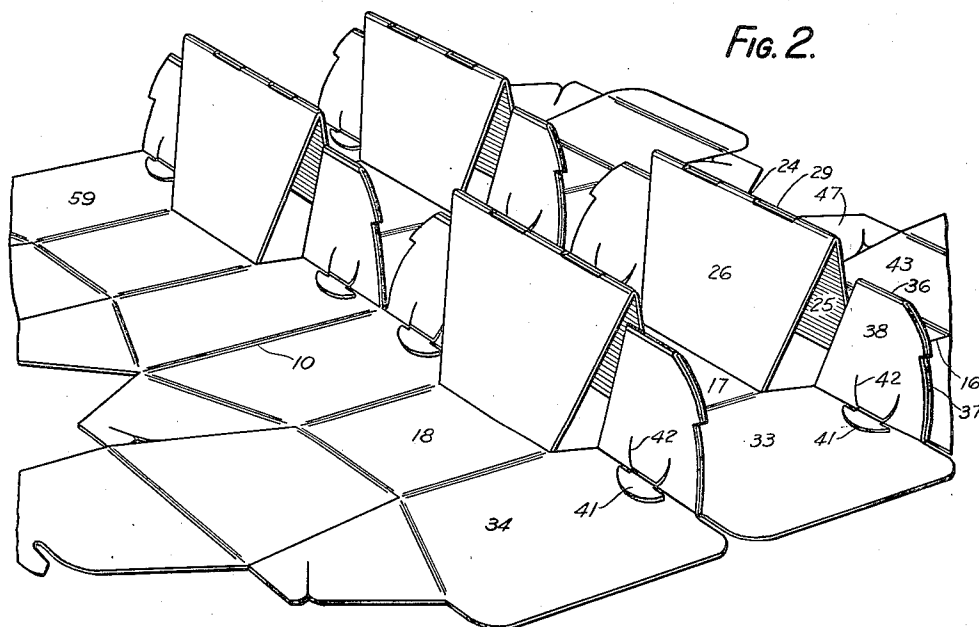
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FIG. 4.

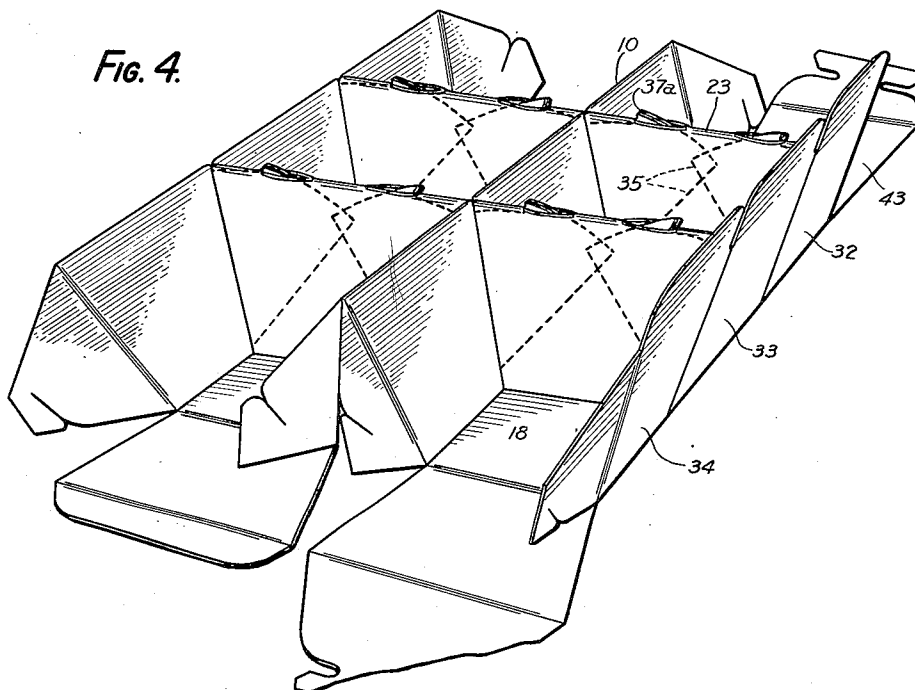
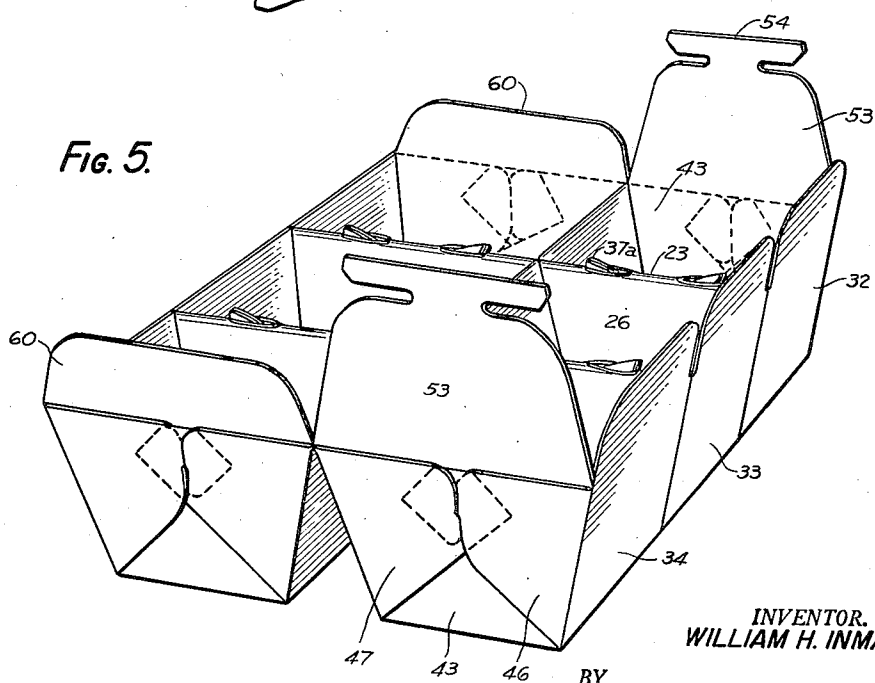


FIG. 5.



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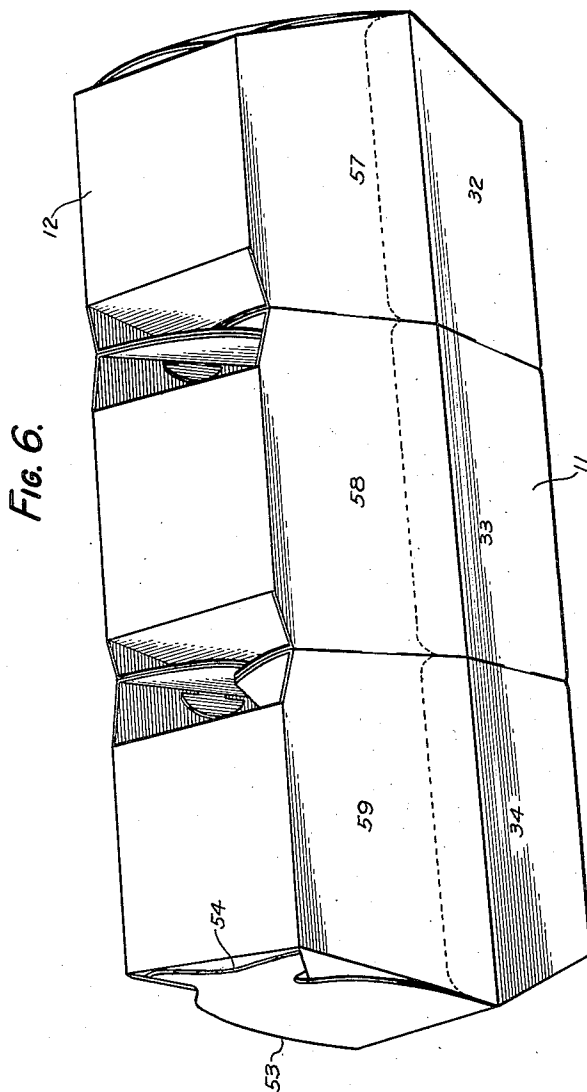
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UNITED STATES PATENT OFFICE

2,591,548

CELLULAR CUSHIONED CONTAINER

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Application June 2, 1947, Serial No. 751,731

5 Claims. (Cl. 229—28)

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This invention relates to containers for food products or other fragile articles and, more particularly, to the cellular type having cushioned walls to protect the contents, one object of the invention being to provide an improved container of this character having a more practical and efficient type of construction adapted for use either as a cellular filler for cartons or to serve by itself as a cellular carton.

Another object is to provide such a container capable of being formed economically from cardboard stock and of being easily and quickly erected and secured in condition for use.

Another object is to supply a carton of the above nature capable of being made from a single blank of cardboard material cut and scored for folding to form a plurality of cells protected by cushioning walls, with means for securely locking the parts in erected condition.

To these and other ends the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Fig. 1 is a plan view of a blank cut and scored for folding to form a container embodying the present invention;

Fig. 2 is an enlarged perspective view showing a preliminary step in the folding of the blank, with sections of the bottom and side walls buckled upwardly;

Fig. 3 is a similar view showing the upward folding of the side walls;

Fig. 4 is a similar view showing the side walls raised and secured in erected position;

Fig. 5 is a similar view showing the end walls of the end cells raised and secured in erected position, and

Fig. 6 is a similar view showing the cover part folded over and secured to the body part to close the cells.

The preferred embodiment of the invention, herein disclosed by way of illustration, is made from a single blank of cardboard, or like sheet material, cut and scored as shown in Fig. 1, ready for folding to form the container. The blank has a longitudinally extending, central fold line 10 separating it into bottom and cover parts, indicated generally at 11 and 12, respectively. These parts are the same in construction, as shown in the drawings, except in the particulars hereafter noted, so that a description of one will serve for both. Thus bottom part 11 comprises a longitudinally extending bottom wall, indicated gen-

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erally at 13, and opposite side walls, indicated generally at 14 and 15. The bottom wall comprises a plurality of longitudinally spaced, rectangular portions, 16, 17 and 18, which form the bottom walls of the cells. Each of these bottom walls, as 16, is marked off by scored folding lines, as 19 to 22, inclusive, about which its side walls are folded upwardly to form a cell. Adjacent bottom walls, as 16 and 17, are connected by a section 23 divided centrally by a transverse score line 24 into side wall portions, 25 and 26, adapted to be folded upwardly about the score line 24 connecting them with each other and about the score lines 21 and 27 connecting them with the bottom walls 16 and 17, respectively, as shown in Fig. 2. Score line 24 is provided with slits, 28 and 29, cut therethrough for a purpose hereafter described.

Each upwardly folding section 23 is separated from the side wall on opposite sides of it by a pair of slits, 30 and 31, cut through the material, each slit having the angular shape shown for shaping each side of the section 23 to conform to the tapered side wall of the cell, as hereafter described. It will be noted that the transverse fold lines, as 21, 24 and 27, intersect at their ends the pair of cuts 30 and 31 on opposite sides of section 23.

The side walls 14 and 15 of the bottom part each comprise side walls for the several cells, as 32, 33 and 34, each adapted to fold upwardly about the score line, as 20, connecting it with the bottom wall 16 and about the line of the slits, 30 and 31. These side walls, 32, 33 and 34 are extended somewhat at their outer ends for cooperation with the cover, as hereafter described. Adjacent side walls are connected by folding sections, as indicated generally at 35, each section being divided centrally by a transversely extending score line 36 into wall portions, 37 and 38, these wall portions being connected with its adjacent side walls, as 32 and 33, by scored fold lines, 39 and 40, and it will be noted that these score lines, 36, 39 and 40, intersect the longitudinal slit 30 at their inner ends. At the center of the fold line 39 is a tongue or hook 41 extended from the side wall 32, and the fold line 40 is provided centrally with a slit 42 adapted to receive the tongue 41 when the section is buckled upwardly, to hold the wall portions 37 and 38 in contact with each other, as shown in Fig. 2. The outer edges of these wall portions are preferably inclined or curved inwardly toward each other, as shown, and are formed respectively with locking lugs, 37a and 38a, for interlocking engagement with

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the corresponding slit, 28 or 29, of the upwardly folding sections 23, as hereafter described.

Each end cell, as 16, is connected by its outer fold line, as 19, with an upwardly folding end wall 43 which is separated at opposite sides by slits, 44 and 45, from corner folds or wings, 46 and 47, respectively. Each of these wings is connected by a scored fold line, as 48 and 49, with the adjacent side wall, as 32, and these wings are provided with inwardly extending slits, 50 and 51, for interlocking engagement with each other in the erected position of the parts, as hereafter described. The outer edge of each end wall, as 43, is separated by a scored fold line 52 from a fastener flap 53 provided at its outer end with a locking tab 54 having oppositely extending shoulders, 55 and 56.

The cover part 12 has the same construction as described above for the body part 11, except that its outer side wall portions, as 57, 58 and 59, are preferably the same height as the other interior side wall portions, instead of being somewhat extended as in the case of the outer side wall portions, 32, 33 and 34 of the bottom part 11. Also the fastener flaps at its ends, as 60, are shorter than the fastener flaps 53 on the bottom part. Otherwise, the cover part 12 is constructed as described above for the body part 11.

The blank is erected by first applying inward pressure at its ends, thereby causing the bottom sections, as 23, and the side wall sections, as 35, to buckle upwardly, as shown in Fig. 2. The transverse fold lines of each folding side wall section, as 35, are at a lesser distance from each other than the transverse fold lines, 21, 24 and 27, of the folding bottom section, as 23, so that the wall portions, 37 and 38, of the side wall section 35 are brought together in contact with each other as shown in Fig. 2, with the upwardly buckled bottom section 23 remaining in an inverted V-shape. The tongue 41 of wall portion 37 is passed through and interlocked with its co-operating slit 42 in wall portion 38 to securely lock the parts in erected position, as shown in Fig. 2.

The blank is then in condition for erecting the side walls, which is accomplished by folding them upwardly and inwardly about the score lines connecting them with the bottom walls, 16, 17 and 18, the interior side walls being folded on each other about the longitudinal central fold line 10 between the cover and body parts 11 and 12. Such folding movement of the side walls moves the upwardly buckled side wall sections, as 35, inwardly between the wall portions, 25 and 26, of the upwardly buckled bottom portion 23, until their lugs, as 37a and 38a, interlock with the slits, as 29, in the fold line 24 of the upwardly buckled bottom section, thus securely locking the longitudinal side walls in erected position as well as the transversely extending side walls, 25 and 26, as shown in Fig. 4.

The end cells are then closed by folding upwardly and inwardly their end walls, as 43, and then folding inwardly the corner wings, as 46 and 47, which are locked together by interengagement of their slit portions, 50 and 51. One or more rows of cells may be employed in this condition without a cover so that the cells are open at their tops, or the cover part 12 may be folded over about the score line 10 so as to overlie the body part and close the cells, as shown in Fig. 6. In that arrangement, the tops of the extended side walls, 32, 33 and 34, are inserted inside the upper cells, the cover end walls 60 being inserted

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inside the ends of the end cells of the body portion and the fastener flaps, as 53, of the body part having their lugs, 55 and 56, engaged under the corner wings of the cover part, as shown, to fasten the cover part in closed position.

It is preferred, before erecting the blank, to preliminarily bend or "break" the cardboard along each fold line 21, 24, 27, 36, 39 and 40, either by hand or by a suitable machine, as well understood in the art, to facilitate the buckling upwardly of the sections 23 and 35 and thus facilitate the erection of the blank as described.

It is evident from the above description that the upwardly buckled bottom wall sections, as 23, are of double walled construction with their wall portions spaced from each other so as to afford an efficient cushioning provision between adjacent cells in each row. In addition, the outwardly flared or tapered shape of the lateral walls of the cells toward their open ends serves to normally extend these lateral wall portions beyond the dimensions of the contained articles, thereby cushioning their lateral sides also against pressure and impacts which might damage the contents.

It is evident that a single row of such cells may be employed, or two or more rows in the side by side relation shown in Fig. 5. When two rows are employed, one part may be folded over as a cover for the other, as shown in Fig. 6. Any one of these arrangements, moreover, may be employed as a filler for dividing a carton into cells, as well understood in the art, or used by itself as an independent carton or container, in view of the securely interlocked and strong construction described.

Since the blank is substantially rectangular in shape, it may be economically cut from stock with a minimum of wastage. After being cut and scored, the blank may be easily and quickly erected by unskilled labor, and the parts securely fastened together in erected position to afford a strong, well cushioned and reliable container in which fragile articles are well protected against damage during handling, storage and transportation.

It will thus be seen that the invention accomplishes its objects and while it has been herein disclosed by reference to the details of a preferred embodiment, it is to be understood that such disclosure is intended in an illustrative, rather than a limiting sense, as it is contemplated that various modifications in the construction and arrangement of the parts will readily occur to those skilled in the art, within the spirit of the invention and the scope of the appended claims.

I claim:

1. A carton device comprising a blank folded to form a bottom wall and opposite side walls, said bottom wall being formed at longitudinally spaced portions with upwardly buckled sections of substantially inverted V-shape forming transverse cell partitions, said transverse cell partitions being outwardly and upwardly flared to provide a cushioning construction, each of said side walls being formed with inwardly folded sections inserted between the spaced walls of each of said transverse cell partitions and lugs on said inwardly folded sections engaging slits in said partitions for holding said side walls in erected position.

2. A carton device comprising a blank folded to form a bottom wall and side walls folded upwardly at opposite sides thereof and formed of material extending continuously from end to end of the carton, said bottom wall being formed at

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longitudinally spaced portions with upwardly buckled sections of substantially inverted V-shape forming transverse cell partitions, said transverse cell partitions and side walls being outwardly and upwardly flared to provide a cushioning construction and each of said side walls formed with inwardly buckled sections each having its walls in contact with each other and inserted between the walls of said upwardly buckled sections, and integral means for securing said sections to each other to hold said side walls in erected position.

3. A carton device comprising a blank folded to form a bottom wall and opposite side walls, said blank being formed at longitudinally spaced portions with pairs of cuts having the cuts in each pair located at opposite sides of said bottom wall, said bottom and side walls being formed with sets of spaced fold lines extending transversely thereof and intersecting one or more of said cuts, said bottom wall having a section of substantially inverted V-shape buckled upwardly between said fold lines of each set, said section having outwardly and upwardly flared walls to provide a cushioning construction, said side walls having a section buckled inwardly between said fold lines of each set and inserted between the walls of said upwardly buckled sections, means for securing the walls of said inwardly buckled sections together for holding said upwardly and inwardly buckled sections in erected position, and means for securing said inwardly buckled sections to said upwardly buckled sections to hold said side walls in erected position.

4. A carton device comprising a blank folded to provide a bottom wall and opposite side walls, said blank being formed at longitudinally spaced portions with pairs of cuts having the cuts of each pair located at opposite sides of said bottom wall, said bottom and side walls being formed with spaced fold lines extending transversely thereof and intersecting one or more of said cuts, said bottom wall having sections buckled upwardly between said fold lines at each of said pairs of cuts to form transverse cell partitions of inverted V-shape, said transverse cell partitions and side walls being outwardly and upwardly flared to provide a cushioning construction, each

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of said side walls having sections buckled inwardly between said fold lines at each of said pairs of cuts and inserted between the walls of said upwardly buckled sections, tongue and slit means connecting the walls of said inwardly buckled sections to hold said buckled sections erected, said inwardly buckled sections having inwardly and downwardly inclined upper edges provided with projecting lugs for engagement with slits in said upwardly buckled sections to hold said side walls erected, and means for closing the outer ends of the cells at the ends of said side walls.

5. A carton device comprising a blank having a longitudinal central fold line hingedly separating said blank into bottom and cover parts, each of said parts being folded to form a bottom wall and opposite side walls, said bottom wall of each part being formed at longitudinally spaced portions thereof with upwardly buckled sections forming transverse cell partitions, said transverse cell partitions and side walls being outwardly and upwardly flared to provide a cushioning construction and said side walls of each part formed with inwardly buckled sections inserted between the walls of said upwardly buckled sections, and integral means for securing the walls of said inwardly buckled sections together to hold said buckled sections erected and for securing said inwardly and upwardly buckled sections together for holding said side walls in erected position.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,345,711	Shapiro	July 6, 1920
2,039,315	Heineman	May 5, 1936
2,091,126	Spees	Aug. 24, 1937
2,098,508	Moore	Nov. 9, 1937
2,174,157	Hanselmann	Sept. 26, 1939
2,214,525	Murguiondo	Sept. 10, 1940
2,381,543	Inman	Aug. 7, 1945