

Oct. 2, 1934.

F. H. SHERMAN

1,975,128

CONTAINER OR PACKAGE FOR EGGS, ETC

Filed Oct. 16, 1931

3 Sheets-Sheet 1

Fig. 1.

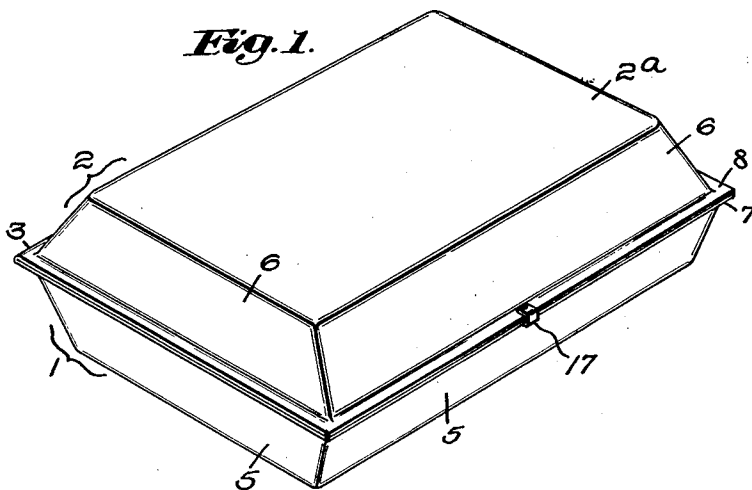


Fig. 2.

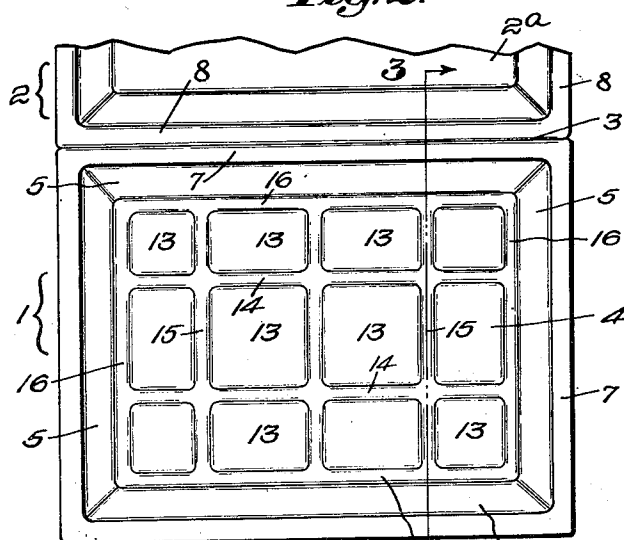
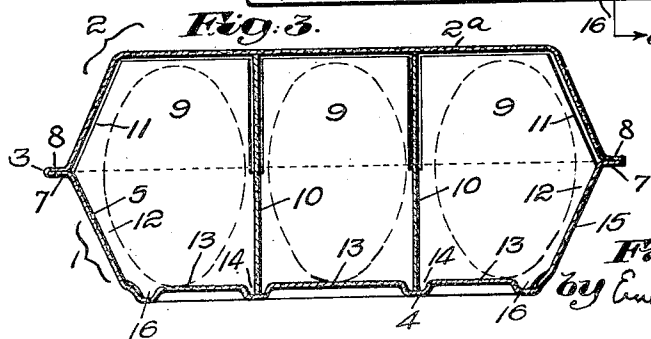


Fig. 3.



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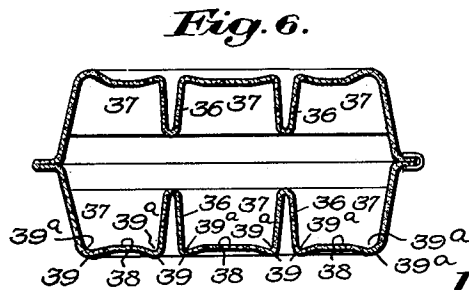
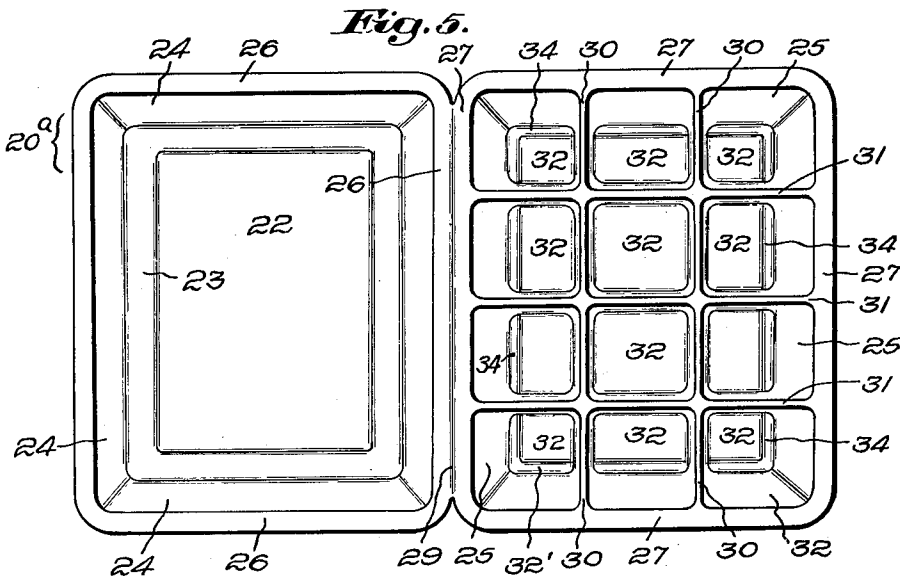
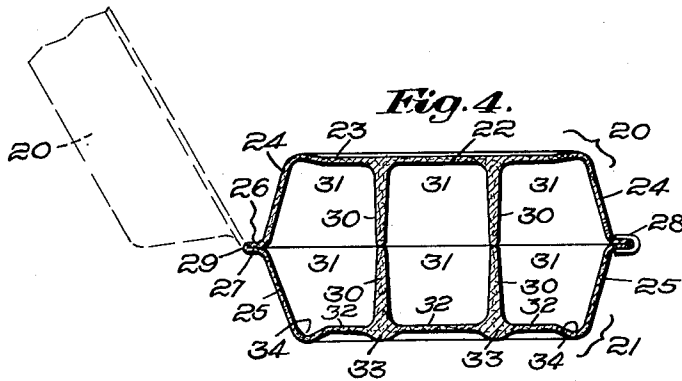
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CONTAINER OR PACKAGE FOR EGGS, ETC.

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3 Sheets-Sheet 2



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CONTAINER OR PACKAGE FOR EGGS, ETC

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3 Sheets-Sheet 3

Fig. 7.

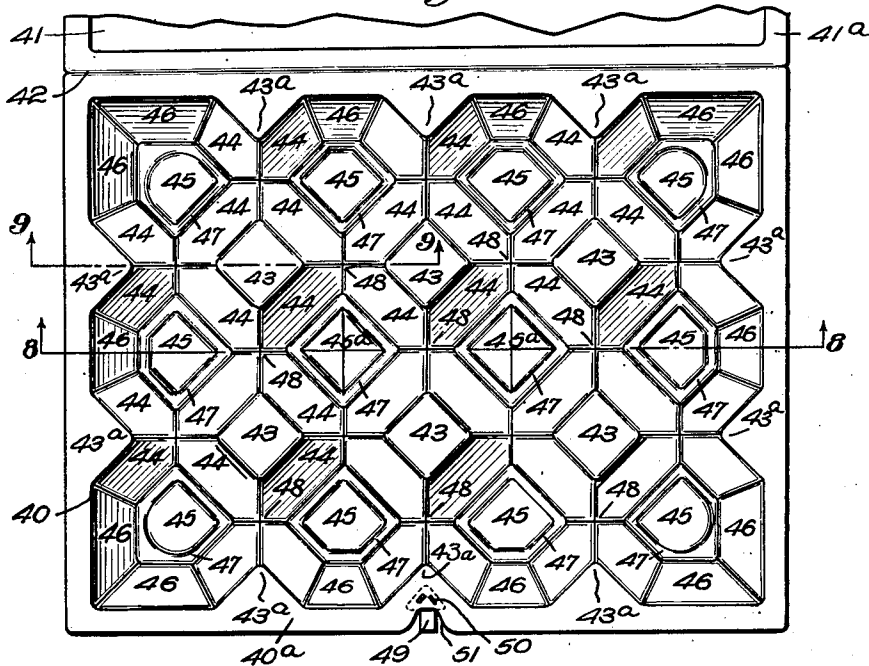


Fig. 8.

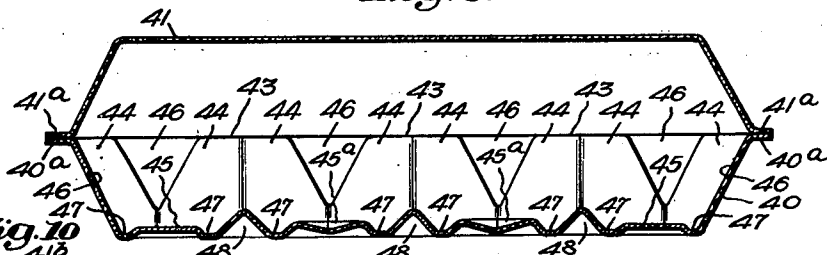


Fig. 9.

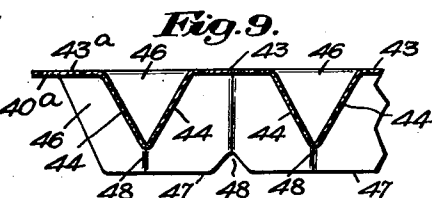
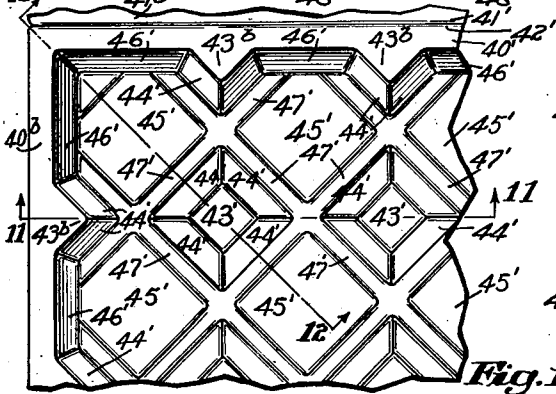


Fig. 11.

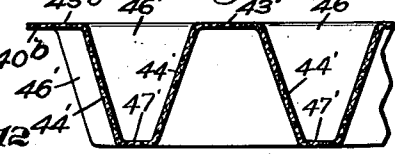
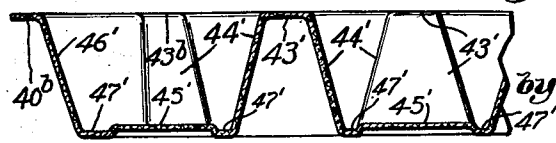


Fig. 12.



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UNITED STATES PATENT OFFICE

1,975,128

CONTAINER OR PACKAGE FOR EGGS, ETC.

Francis H. Sherman, Palmer, Mass.

Application October 16, 1931, Serial No. 569,177

3 Claims. (Cl. 229—29)

My present invention relates to packages or containers for fragile articles, especially eggs, and aims to provide a strong, inexpensive fibrous device of the class described, particularly adapted for the retail distribution of the articles in small lots. As to all common subject matter this application is a continuation in part of my copending application Serial No. 403,770.

In the drawings illustrating by way of example certain embodiments of the invention,—

Figure 1 is a perspective of the exterior of a closed container, carton or box embodying one form of the invention;

Fig. 2 is a plan of the container of Fig. 1, open, with a portion of one half-section broken away and with the cellular partitioning means omitted;

Fig. 3 is a cross-section through a closed container as in Fig. 1, on a line corresponding to the line 3—3 in Fig. 2;

Fig. 4 is a cross-section, on a smaller scale, through a closed carton in accordance with another embodiment of the invention, the partly open position of the upper section being indicated in dotted lines;

Fig. 5 is a plan of a container having a bottom section as in Fig. 4, shown in full open position, the top section being without cell partitions;

Fig. 6 is a view corresponding to Fig. 4 showing a further modified form embodying the invention;

Fig. 7 is an inside plan view on a larger scale, of a further embodiment of the invention, the major portion of the upper half-section being broken away;

Fig. 8 is a cross-section on a line corresponding to the line 8—8 in Fig. 7, the carton being closed;

Fig. 9 is a partial cross-section on the line 9—9 of Fig. 7;

Fig. 10 is a view corresponding to a portion of Fig. 7, illustrating a still further modification; and

Figs. 11 and 12 are partial cross-sections on the lines 11—11 and 12—12 of Fig. 10.

Referring now to Figs. 1 to 3, the container as there illustrated comprises two main sections 1 and 2, which may be substantial duplicates but are here shown as differing in the structure of their horizontal walls, the main wall or top 2a of the upper section 2 being flat or substan-

tially so, adapting it for printing and advertising matter.

While the container sections may be otherwise formed, they are preferably made by a pulp-sucking or fibre felting process, as in my said copending application, whereby they are fashioned directly and in final form from fibrous or cellulosic material such as wood pulp and the like suspended in solution, the fibres being deposited on molds or forms of the appropriate shape. The container sections may be thus formed individually, but preferably they are produced as a continuous web, from which pairs of the sections are cut, the two sections of each pair being left connected by a hinge formation as at 3 in Figs. 1, 2 and 3. As stated, however, the sections need not be integrally connected, and in the complete package may even be merely superposed separate members, tied, clipped or otherwise held in place during use. By reason of their formation direct from pulp material, the container walls are of a distinctly resilient, elastic nature, as contrasted with ordinary cardboard, for example, but are sufficiently rigid to be self-supporting and of adequate strength.

The lower section 1 has a bottom indicated as a whole by the numeral 4 and its side walls 5 are outwardly inclined, the side walls 6 of the upper section 2 being similarly sloped. On both sections the side walls or one or more of them are set-over or flared at their edges to form the lower and upper flanges 7 and 8 respectively, providing a firm seat for the two container sections, one upon the other. This provision of a rim or flange, either continuously or at suitable spaced intervals, upon one or both of the container sections serves also to increase the rigidity of the latter and generally strengthen them, as well as affording a protective rib or lateral cushioning means for the container as a whole. By reason of the inclined side walls a number of the containers may readily be nested for packing, shipment or storage. In the case of hingedly connected upper and lower parts, as illustrated in the figures, these parts are stacked in pairs in their open position, or where the sections are formed separately they may be piled individually in nested relation.

The container as shown by way of example is designed for the reception of one dozen articles,

such as eggs, arranged 3 x 4, although various other sizes and arrangements may be employed, and in accordance with the invention individual cells or pockets are provided by separating walls or partitions of various constructions, each cell having an elevated cushioning formation at its bottom whereby the received article is held above the surface on which the container rests. The cell-partitioning walls may in some instances be integral with the container and solid or substantially so, as in Figs. 4 and 5, or integral and hollow or partly so, as in Fig. 6, or of the broader hollow rectangular or pyramidal form as in Figs. 7 to 12. Or they may be as in Figs. 1 to 3, wherein the cell partitions are provided by crossed interlocking strips 9 and 10, Fig. 3, of the general type heretofore employed in egg cartons, sometimes referred to as a "honeycomb" filler. Such filler as herein utilized in the embodiment of the invention as in Figs. 1 to 3 is specially shaped and proportioned to position it firmly within the container and to enable it to afford maximum reinforcement to all the surrounding outer walls. Accordingly the ends of one or both sets of strips 9 and 10 are projected or shaped to conform with the inner faces of the container walls, being oppositely and inwardly inclined from approximately the longitudinal median lines of the strips, substantially in the manner indicated at 11, 12. Thus the strips 9 and 10 of Figs. 1 to 3 have a maximum width at midheight, in the closing plane of the two main sections 1 and 2 of the container. Said strips are proportioned to the dimensions of the container, so that the interengaged strips or filler may readily be dropped into the open tray portion of the latter, but by reason of their described construction they are adapted to act as abutments or braces resisting external end or side pressures as well as vertical pressures upon the container.

Referring now particularly to Figs. 2 and 3, the bottom wall 4 of the lower section 1 is so constructed as to afford novel cushioning and reinforcing means at the base of each cell, individually. One form of such means, as there illustrated, comprises the elevated or raised base areas or platforms 13, positioned and spaced to underlie each cell. Said article-supporting cushions may be single substantially flat-surfaced elevations as shown, or otherwise formed, to receive and cushion the individual eggs or other articles. They may be approximately coextensive in area with the lower portions of the cells, as illustrated, or of less area, it being noted that in the central cells which have no sloped walls the bottom cushions are substantially square while in the lateral cells the cushioning elevations are of a decreased area proportionate to the inclination of the container walls.

Between the several bottom cushions or supports 13 the container bottom is formed with a series of crossing channels or downwardly extending ribs 14 and 15, at right angles to each other. The outer bottom surfaces of these ribs are in a plane with the lower edges of the container sides, and constitute the supporting surfaces, feet or grid on which the container sets. A similar peripheral channel or rib 16 extends preferably completely around the container bottom immediately adjacent the bases of its sides, which surrounding channel also constitutes a part of the base surface and further serves to strengthen and reinforce the whole lower section of the container 1 as do also the intermediate crossing channels or ribs 14 and 15. Said latter intermediate channels 14 and 15 are adapted to receive, position and laterally support the lower portions of the filler strips or cell partitions 9 and 10, and thus have this additional important function and special cooperation with the cell-forming elements, thereby further contributing to the general strength, firmness and stability of the package as a whole.

It will be noted that each of the two main sections 1 and 2 of the container is of less height than the cell-forming means or filler, being but one-half that height in the illustrative embodiment in Figs. 1 to 3. Thus when the container is open the upper portions of the contained articles, such as eggs, are largely exposed, affording an adequate and attractive display thereof and facilitating inspection. The two sections of the container need not be of the same height, however, but one of them may be deeper than the other, the cell-partition ends 11, 12 being correspondingly varied to fit. The side walls also are not necessarily inclined but such construction is preferred both because of the greater ease with which the parts may be nested, and for other reasons, particularly in connection with their manufacture, said construction facilitating the removal of the container parts from the mold forms and also making it more readily possible to give said parts the desired depth.

The container sections may be held in closed relation in any suitable manner, as by adhesive stickers or strips, or by one or more securing clips such as illustrated at 17 in Fig. 1. If the upper and lower parts are not hinged together, similar securing means may also be applied to the superposed rims at the opposite side or elsewhere about the container. In some instances the two sections may be hinged together by means of a strip of adhesive tape or the like, but preferably the two parts are formed integrally in the manufacturing process, whether by pulp-sucking or otherwise, and are scored or similarly arranged for ready folding one onto the other.

In the modified construction illustrated in Figs. 4 and 5 the general external wall structure of the container may be similar to that of Figs. 1 to 3. In said Figs. 4 and 5, however, as well as in the forms of the invention in the succeeding figures, the cell partitions are constituted integrally with the container walls and are preferably molded or formed therewith in the process of manufacture.

Referring to Fig. 4, the upper section 20 may be identical with the lower section 21, but as shown the top wall 22 of the upper section has a substantially flat outer surface, though preferably slightly set in or dished as at 23, below the peripheral portion at the upper edges of the sloped side walls 24, affording reinforcing adjacent the meeting line of the top and side walls. The lower section 21 has similarly inclined side walls 25, and each section has a peripheral flange 26 and 27 respectively as in the preceding figures. They are adapted to be held in closed position as by the clip 28, from which position the top section may be opened back along the hinge connection 29, as to the dotted line portion indicated.

Instead of the separate crossed strip partitions of Figs. 1 and 3 the container is fashioned, in its formation from the pulp material, with integral cell-partitioning or separating walls 30 and 31 respectively at approximately right angles to each other, dividing the interior of one or both container sections into the desired number and arrangement of cells, for example, twelve cells

disposed 3 x 4 as in the drawings. These cell walls are preferably of somewhat greater thickness than that of the external walls of the container, providing substantial cushioning between contained articles and cross bracing and strengthening the container as a whole.

The bottom portion 32 of each cell is elevated above the bases of the side walls 25 of the lower section, as in the preceding figures, and in the vertical planes of the cell partitions the bottom of the lower section is formed with ribs or projections 33, substantially as external prolongations of the cell walls, and constituting, together with the peripheral channels or hollow rib 34 extending around the base of the side walls, a grid-like support on which the container may rest. Thus each cell is afforded a bottom cushioning formation functionally similar to that of Figs. 1 to 3.

In Fig. 5 the cell partitions are shown as provided only on the lower section 21, as is adequate in most instances, the top section 20a being similar as in Fig. 4 except for the omission of the partitioning walls. In both Figs. 4 and 5 the cell partitions are illustrated as the same in height as the external walls of the container sections, so that in Fig. 4 the partitions of each section are adapted to meet and seat on the corresponding partitions of the opposite section, when the container is closed. They may be otherwise proportioned, however, those of one section being higher than the outer walls of that section, and being correspondingly shorter in the other section, if provided thereon, or they may both be lower, without meeting, or may be omitted in the upper section, as in Fig. 5, in which case the partitions of the lower section may be as shown in said figure, that is, approximately one-half the height of the container, or less, or greater, or may even extend up into contact or substantially into contact with the closed top section of the container.

In Fig. 6, for example, the cell partitions 36 and 37 of the lower and upper sections are less than half the container height. The container construction of said Fig. 6 may be in all respects not otherwise mentioned, the same as in Figs. 4 and 5. In this case the separating partitions are hollow or double-walled, substantially V-shaped members, also formed integrally with the container as it is fashioned from the pulp material. The individual cell bottoms 38 are raised as in the previous forms of the invention, to support the articles out of contact with the surface on which the container rests. The bases of the cell walls are carried down to afford supporting ribs or feet, as at 39, which ribs may be thickened or solid as in Fig. 4, or may be channeled, as illustrated in Fig. 6, providing an internal peripheral channel 39a about the bottom of each cell, and also at the base of the container sides, with strengthening and reinforcing effect. As in the previous figures the relative heights of the cell partitions may be widely varied.

Turning now to Figs. 7 to 12, I have there shown other embodiments of the invention, claims for which are contained in my divisional application S. N. 664,916. Here again the container comprises lower and upper tray-like sections 40 and 41 respectively, desirably integrally hingedly connected as at 42. In any respects not otherwise mentioned the construction may be as in the preceding figures, and, as there, the cellular formations may be provided for or lie within each of the tray-like sections, but in the examples illustrated

in said Figs. 7 to 12 the main wall or top of the upper section or tray, similarly as in Figs. 1 to 5, is shown as externally flat or substantially so, adapting it for the reception of printed or stamped legends, lettering, advertising matter, designs or the like which are not readily applicable to the uneven surface such as that at the outside of the lower tray-like section. The cells are here of general rectangular shape as in the other forms, but with the corners filled in or carried across as a result of a widening of the cell partitions, which are expanded laterally, in effect drawing the straight line double-wall partition of each cell of Fig. 6 out into a roughly rectangular or diamond-shaped hollow member, in the nature of a truncated four-sided pyramid, the four main edges or corners of which are respectively directed toward the four side walls of the container, each such full separator or pyramid including a top 43 from which the four main sides 44 slope downwardly and outwardly.

By reason of this laterally expanded and approximately pyramidal form of the partitioning walls the resulting cells are in effect rotated on their vertical axes through 45° from their position as in the previous figures. While the cell bottoms 45 remain approximately rectangular or square, at least in the interior cells, their edges extend obliquely of the container as a whole, along lines at angles of approximately 45° inclination with respect to the top edges of the container side walls.

As the container as shown is designed for holding one dozen articles arranged 3 x 4, there are six full or interior partitioning pyramids 43-44, two rows of three each lengthwise of the container. These six pyramids provide between them the two full-sided or substantially completely rectangular interior or central cells through which the section line 8-8 passes in Fig. 7. The ten side or peripheral cells, while of substantially or nearly the same volume content, and adequate for receiving and cushioning an egg or other article, are in effect flattened or sloped off, upon one corner in the case of the six side cells which are not at the container corners, and upon two corners in the remaining four side cells, in the container corners. Between and completing these ten side or peripheral cells are the ten half-pyramids or approximately triangular pyramid portions 43a, each corresponding in shape to a one-half portion of one of the six full rectangular internal or central pyramids 43-44, and each having two similarly sloped sides 44, 44 whose meeting edges are in the vertical plane diagonally through the adjacent interior or full pyramids, perpendicular to the top edges of the container side walls.

The two outer sides of the four corner cells, and the single outer sides of the six intermediate side or peripheral cells are completed by the inwardly sloped side walls 46 of the container section, corresponding to portions of the outer side walls of the containers of the previous figures.

Thus, lengthwise of the container there are two rows of partitioning formations, each row including three full or rectangular pyramids and two half or triangular pyramids, one at each end of the row, while transversely of the container, in the direction of its least dimension, there are three rows of partitioning formations, each including two of the just-mentioned full or rectangular pyramids and two other half or triangular pyramids, one at each end, completing the provision of twelve article cells disposed 3 x 4.

As in the previous forms the cell bottoms 45 are

constituted as cushioning formations, being elevated in whole or part above the level on which the container rests. Surrounding the elevated cushioning platforms 45 of the cell bottoms are the channels or depressed hollow ribs 47, the lower faces of which provide the actual supporting base or grid-like bottom of the container, similarly as in Figs. 1 to 6.

The construction as above described will be readily apparent in the sectional view of Fig. 8, taken along the longitudinal center line in Fig. 7 and hence passing diagonally through the bases of the two full-rectangular or central cells, and between the two rows of full pyramidal partitions. As indicated by the cross-hatched material, following it lengthwise across said figure, this view cuts through an outer side wall 46 of one of the intermediate side cells, the adjacent channel or foot-rib 47, the cell bottom cushion 45, the said channel 47 again, then the base of one inclined wall 44 of one of the full or interior pyramidal partitions, and thence through the base of the adjoining inclined wall 44 of said pyramidal partition, into the next adjoining cell, etc. It will be understood in Fig. 8 that the surfaces 44 appearing there incline away from the reader and alternately in opposite directions. The plane surfaces 46 seen through between the pyramids 44—43—44 are the outer sides of the longitudinal side cells, in the next row beyond that through which the section is taken.

It will be noted that the pyramid sides 44, where they meet those of adjoining pyramidal partitions, do not extend entirely down to the lowest level of the container, but form small hollow four-sided pyramidal parts, indicated at 48 in Fig. 8 and also in Fig. 7. The sectional view of Fig. 9, as contrasted with Fig. 8, cuts diagonally through the pyramidal partitions rather than through the cells. In some or all instances the cell bottom cushioning formations may be dished or centrally or otherwise depressed or further elevated, or variously modified, for example as at 45a, 45a in the central cells of Figs. 7 and 8.

In Fig. 7 I have shown a novel form of securing means for the container sections, comprising a metal clip 49 having a body portion secured as by tongues 50 in the top surface 43a of one of the partial pyramidal partitions, or in the adjoining area of the peripheral flange 40a. The latter is recessed as at 51, and the flange 41a of the other section is correspondingly recessed, whereby the clip is wholly contained within the contour of the container but is adapted to be folded over onto the inner part of the upper flange to secure the two sections in closed position.

In Figs. 10, 11 and 12 is shown a modification of the form of Figs. 7 to 9, similar reference numerals being used for corresponding parts, with the addition of prime marks. In Figs. 10 to 12 the flange of the lower section 40' is indicated by the numeral 40b, and that of the upper section 41' by the numeral 41b, while the peripheral triangular flat areas between cells, corresponding to the parts 43a of Figs. 7 and 8, are indicated as 43b. In this instance the channels 47' bounding the raised floors 45' of the cells are in alignment in successive cells, and meet or cross at the corners of adjoining cells. Thus these channels, ribs or feet form a continuous grid-like structure over the entire bottom of the lower section, constituting a base for the latter. These rib or channel elements 47', extending at angles of approximately 45° with respect to the container outer edges, afford a continuous cross bracing of the

bottom, from side to side, immediately adjacent the cell floors, whereas in Figs. 7 and 8 the corresponding reinforcing or bracing is provided by the merging base portions of the pyramidal cell separators. In Figs. 10 to 12 it will be noted that the cell floors 45' are of a somewhat larger area, while the pyramidal separators 44'—43'—44' are individually bounded by the grid channels 47' and are of proportionately less area, with slightly steeper side walls. It will be understood that the sizes and shapes of the cells and partitioning means in any of the illustrated forms may be widely varied within the scope of the invention.

From the foregoing it will be apparent that I have provided an integrally or otherwise partitioned cellular container for eggs or other fragile globular articles, which may be inexpensively manufactured, of fibrous material, chiefly or wholly by a moulding or pulp-handling process as a result of which the material is inherently resilient or of a cushioning nature but nevertheless self-supporting. The resulting container is of marked strength and shock-resisting character, affording a firm, fully cushioned cellular package admirably adapted for the purposes intended.

My invention is not limited to the particular embodiment shown and described herein by way of example, its scope being pointed out in the following claims.

I claim:

1. A 3 x 4 cellular container for fragile articles such as eggs, comprising tray-like sections adapted for mated positioning one on the other in opposition, each section including a main planular horizontal top or bottom wall and enclosing seamless side walls diverging outwardly from the periphery of the horizontal wall at substantially similar angles, said sections being composed of cellulosic material, at least the lower one of said sections having formed therein a plurality of rows of raised formations providing article-cushioning bottoms for a like number of individual article cells, the peripheral under surface of the bottom of said lower section and its portions intermediate said cell bottoms constituting a grid-like and cell-defining supporting base for said section, and integral upstanding cell-partitioning wall means cooperating with said grid-like base to reinforce the container as a whole, the total cellular area not substantially exceeding that of a standard honeycomb filler of an equal number of cells.

2. A package for eggs or like fragile globular articles, comprising, a container of cellulosic material including oppositely mating top and bottom trays, each tray comprising a planular horizontal top or bottom wall and integral seamless and continuous side walls about the periphery of and outwardly inclined with respect to said horizontal wall, and cooperating integral, upright cell-partitioning means for at least the bottom tray, said bottom tray having a grid-like supporting base formation composed of downwardly protuberant ribs at longitudinal and transverse peripheral portions of the cell bottoms, extending directly below lower portions of the cell-partitioning means and defining the individual cell areas, the total cellular area not substantially exceeding that of a standard honeycomb filler of an equal number of cells.

3. A cellular container for fragile articles such as eggs, comprising tray-like sections adapted for mated positioning one on the other in opposition, each section including a main planular horizontal top or bottom wall and enclosing seamless

side walls diverging outwardly from the periphery of the horizontal wall at substantially similar angles, said sections being composed of cellulosic material, the lower one of said sections having
5 formed therein a plurality of rows of raised formations providing article-cushioning bottoms for a like number of individual article cells, the peripheral under surface of the bottom of said lower section and its portions intermediate said cell
10 bottoms constituting a grid-like and cell-defining supporting base for said section, integral up-
standing cell-partitioning wall means cooperating with said grid-like base to reinforce the container as a whole, the total cellular area not substantially exceeding that of a standard honey-
80 comb filler of an equal number of cells, an external surface of the upper section being flat or substantially so, thereby adapting it for the imprinting thereon of lettering, designs and the like.
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