March 10, 1936. S. BERGSTEIN 2,033,222

EGG CARTON

Filed April 1, 1932 3 Sheets-Sheet 1

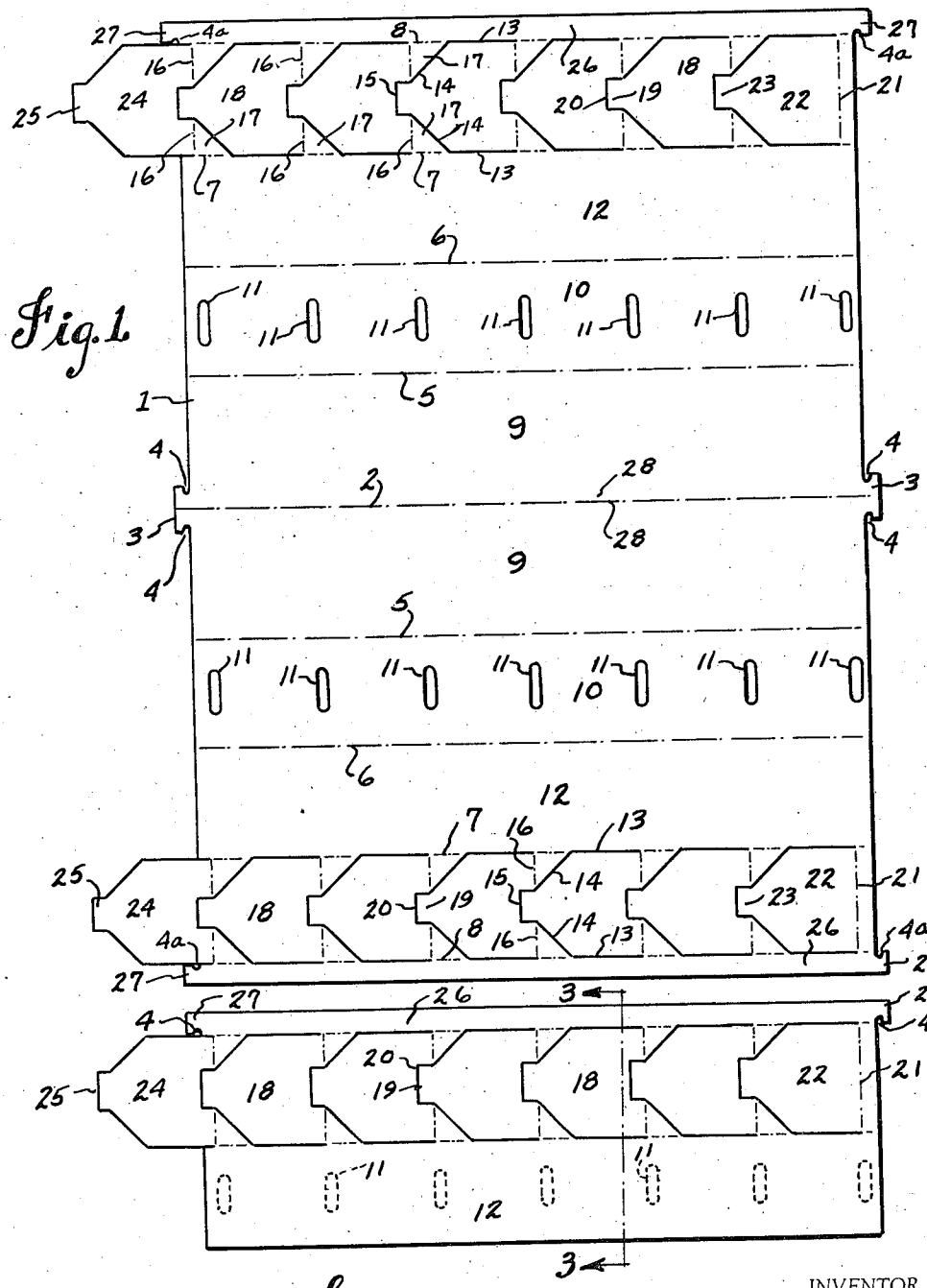


Fig. 1.

Fig. 2.

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EGG CARTON

Filed April 1, 1932 3 Sheets-Sheet 2

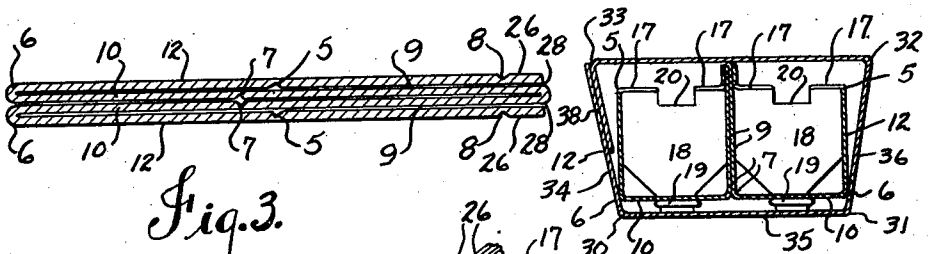


Fig. 3.

Fig. 5.

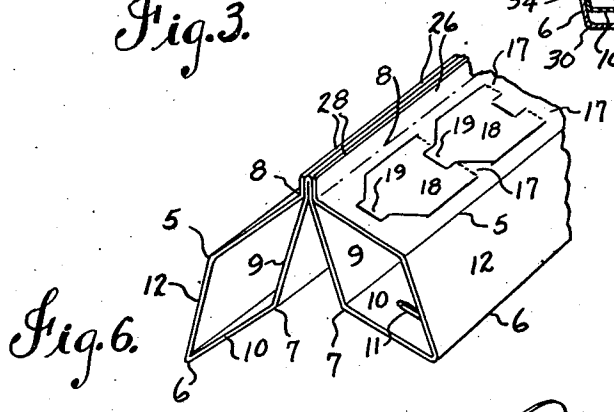


Fig. 6.

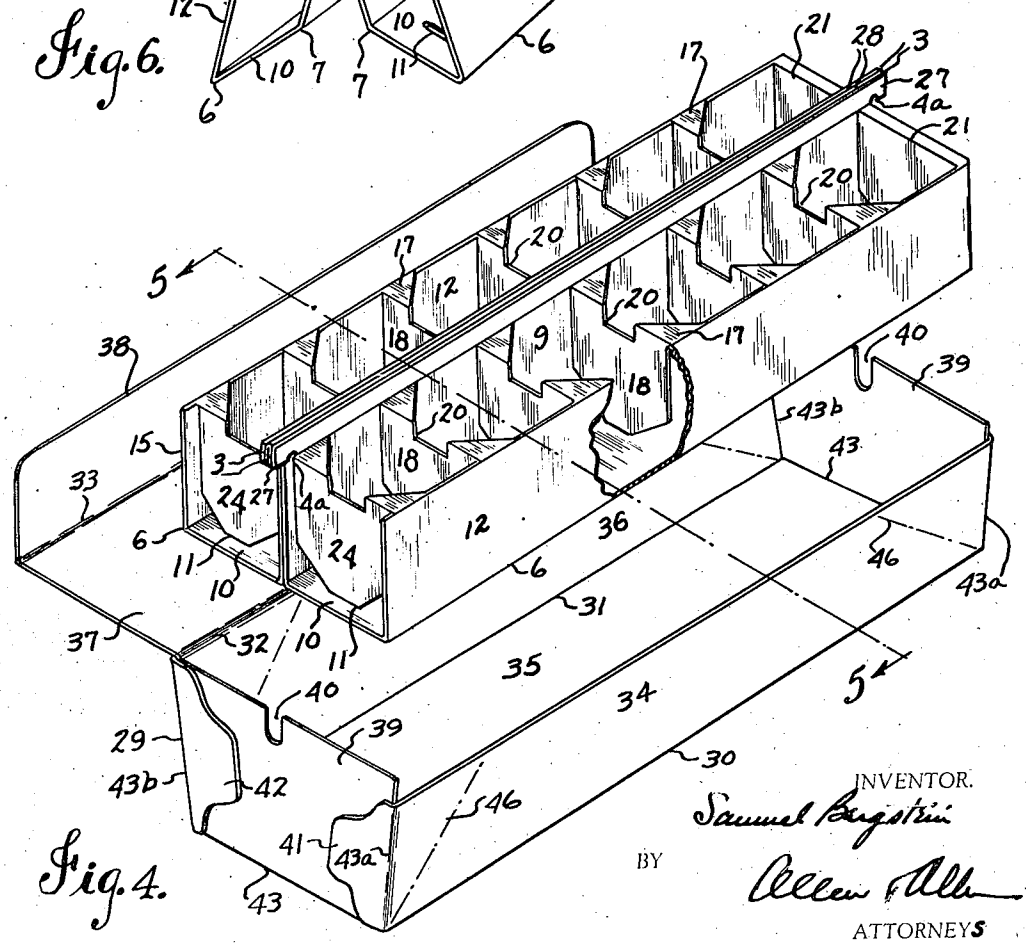


Fig. 4.

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EGG CARTON

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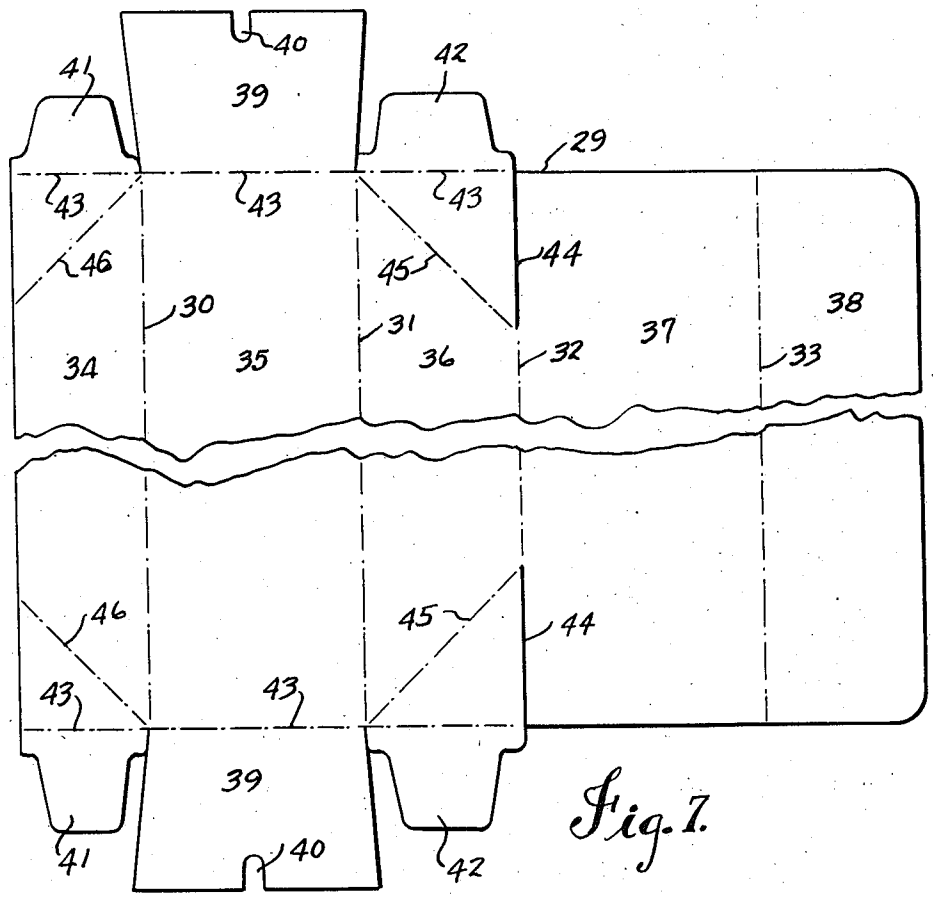


Fig. 7.

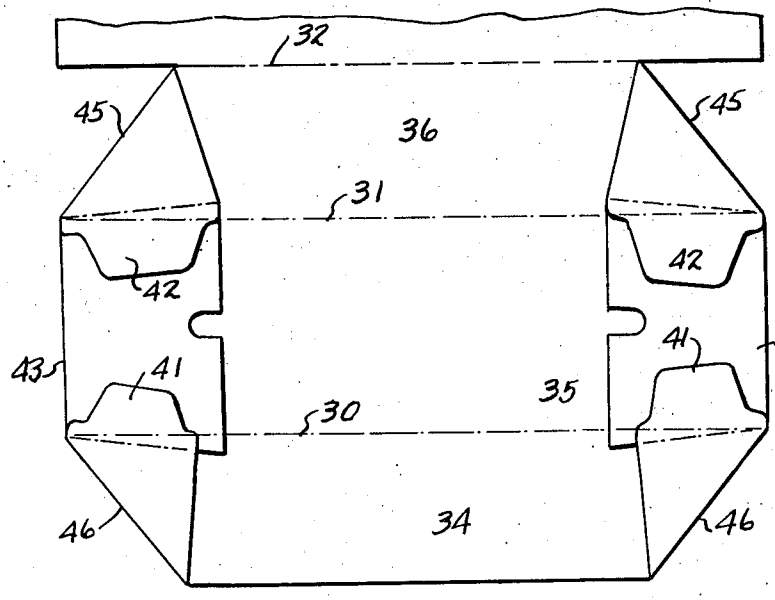


Fig. 8.

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Patented Mar. 10, 1936

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UNITED STATES PATENT OFFICE

2,033,222

EGG CARTON

Samuel Bergstein, Cincinnati, Ohio

Application April 1, 1932, Serial No. 602,418

17 Claims. (Cl. 229—29)

My invention relates to containers for fragile articles. An object is to provide a container of that character in which the articles will be effectively cushioned and which will have its structural parts mutually sustaining so as to afford ample rigidity of the container as a whole and to hold the articles as securely as possible against displacement within the container. A further object is to manufacture the containers inexpensively, preferably to make containers which may be produced on high speed machinery with a minimum of waste of material.

The invention is more especially concerned with the packing of eggs in the usual packages of one dozen eggs each, and with the eggs, as usual, in two rows of six eggs each, with a partition between the rows and partitions between the eggs of a row. It will be understood, however, that variations may occur in the number and arrangement of the articles in a container, and that the containers may be made according to my invention for the packing of articles other than eggs.

A further object is to provide a combination of an outer container with an inner container or partition structure so that the cushioning is effected on all sides of the inner structure by a substantial spacing of the walls of the outer container therefrom, and at the same time holding the inner structure and its contents firmly in this spaced relation and causing it to amply support the spaced walls of the outer container against yielding or crushing under outside impacts.

A further object is to make each container from a single cut and folded sheet with such attachments of parts of a sheet to each other as are necessary to sustain the container in set-up condition, ready made with the container in collapsed or knock-down condition, so that the container may be set up by a very simple manual operation.

A further object is to have the inner container or partition structure so made that the partitions between articles may be brought into operative positions, and preferably locked in said positions, by very simple operations, preferably by the act of insertion of the articles between the partitions.

A further object is to provide each compartment at its top with diagonal article-bracing edges at opposite corners, so that an article, such as an egg, which is of reduced width from its middle upward, in its position in the compartment, is held not only by the partitions and container wall at its middle larger part, but by these bracing edges in its upper part, so that it is held from tilting in its compartment in a direction laterally of the row of articles.

Further objects will appear in the course of the following description, which is illustrated by the accompanying drawings, in which—

Figure 1 is a plan of the cut and scored blank from which the inner container is to be formed, the scores being indicated by broken lines;

Fig. 2 is a similar view of the blank folded and with the attachments of its parts made, in collapsed or knockdown condition, ready to be set up for use;

Fig. 3 is a cross section on the plane of the line 3—3 of Fig. 2;

Fig. 4 is a perspective view of the outer container set up with its cover open, and the inner container set up and placed above the open top of the outer container ready to be inserted therein, a portion of the nearer side wall of the inner container being broken away to reveal interior construction;

Fig. 5 is a vertical cross section of the outer container and the inner container therein and the cover of the outer container closed, the section being on the plane of the line 5—5 of Fig. 4;

Fig. 6 is a fragmentary perspective view of the inner container partially set up;

Fig. 7 is a plan of the cut and scored blank from which the outer container is to be formed, the scores being indicated by broken lines and intermediate parts of the blank being omitted for lack of space; and

Fig. 8 is a similar view of the same blank folded and with the attachments of its parts made, in collapsed or knock-down condition, ready to be set up for use.

As shown in Fig. 1, the blank for the inner container 1 is approximately a rectangular sheet with certain projections at its ends as will be explained; the short dimension of the sheet being considered as its length, as this is the lengthwise direction of the completed container. This sheet has the longitudinal median score line 2, symmetrical to which, at each end, is a short rectangular projection 3. In each side of each projection 3 there preferably is a small notch 4. In succession outwardly from the median line 2, in both lateral directions, are four score lines 5, 6, 7, and 8, parallel with the median score line 2.

The parts of the blank between the median line 2 and the first additional lines 5 are the inner walls 9 which collectively are to form a middle lengthwise partition. The parts between lines 5

and 6 are the bottoms 10. Arranged along the middle of the width of each bottom 10 is a series of slots 11, two of these slots being close to the right and left hand ends, respectively, of the bottom 10, and the other five slots being spaced at equal intervals between the end slots.

The parts between the lines 6 and 7 are the outer side walls 12, and between the lines 7 and 8 are the parts to extend across from these outer walls 12 to the inner walls 9. On the lines 7 and 8 are cuts 13 in transversely alined pairs, the right hand ends of the cuts of each pair being alined with a respective slot 11 of the bottom 10. From the left hand ends of the cuts of each pair, cuts 14 converge to the left to join respective side parts of a cut 15 of the shape of a wide and shallow U with its bottom to the left. The junctions of each U-shaped cut 15 with the converging cuts 14 are substantially in transverse alinement with the right ends of the next cuts 13, and transverse score lines 16 extend from these junctions with these ends of the cuts 13, leaving triangular parts 17 between the diagonal cuts 14 and the lines 7 or 8 and the lines 16. The parts between sets of U-shaped cuts 15 and converging cuts 14 are the partitions 18. The triangular parts 17 form the junctions of these partitions 18 with the side walls 9 and 12. The U-shaped cuts 15 leave tabs 19 on the bottom edges of the partitions 18 and recesses 20 in their tops.

At the right hand end of the blank, transverse score lines 21 join the right hand ends of the terminal cuts 13, and the parts between these lines 21 and the next sets of diagonal cuts 14 and U-shaped cuts 15 are the end walls 22, which have tabs 23 left on their bottom edges by the U-shaped cuts 15, these cuts leaving recesses 20 in the tops of the adjacent partitions 18. At the left end of the blank are projections with their sides alined with the lines 7 and 8, and short cuts 13*a* extend from these sides along the lines 7 and 8 to the adjacent transverse score lines 16. The outer ends of these projections are shaped the same as the ends of the partitions 18 and end walls 22 are shaped by the diagonal cuts 14 and U-shaped cuts 15, and, from the score lines 16 outward, thus form the other end walls 24, with bottom tabs 25. The narrow edge portions of the blank, out from the outermost score lines 8, are the attaching flaps 26, and each flap 26 has end lugs 27 to match the portions of the projections 3 at each end of the spaces 28 to which the flaps 26 are to be attached.

To assemble the blank in collapsed or knock-down condition as shown in Fig. 2, it is folded in one direction on the median line 2, and in the opposite direction on the lines 6. This brings the outer side walls 12 to overlie the bottoms 10, and the sets of partitions 18 and end walls 22 and 24 to overlie the inner walls 9, with the attaching flaps 26 and their end lugs 27 against the inner wall portions 28 and their end projections 3. The end lugs 27 have notches 4*a* in their inner edges to register with the notches 4 of the projections 3. The portions 26 and 27 are attached to the portions 28 and 3 preferably by means of a suitable adhesive, and this is the only attachment required to be made in the assembly.

To set up the container 1 for use, from its collapsed or knock-down condition to its condition as shown in Fig. 4, the collapsed structure is squeezed transversely so that it bends on the score lines 5 and 7 in the same direction as the bends on the score lines 6, and bends on the outermost score lines 8 next to the attaching flaps 26, in the opposite direction, as shown in Fig. 6, until the side walls 9 and 12 are at right angles with the bottoms 10 and the inner walls 9 are lying parallel with each other and substantially contacting together. The attached together portions 26 and 28 now form an upstanding ridge of four thicknesses of material, along the top of the container from end to end thereof, with extensions of the same thickness at the ends, formed by the attached together end lugs 27 and projections 3, which have their registering notches 4 and 4*a* opening downward.

The assembly of this inner container 1 is completed by bringing the partitions 18 and end walls 22 and 24 into positions at right angles with the bottoms 10, by bending them down on the transverse score lines 16, which drags the tabs 19, 23, and 25 along the bottoms 10 until these tabs pass into the respective slots 11 of the bottoms 10, which they will do without special attention. It is found in practice that the partitions 18 and right hand end walls 22 will thus insert their tabs 19 and 23 into the slots 11 when the partitions and end walls are pressed down by the insertion of the eggs. It will be seen, therefore, that the setting up and filling of the containers is very simple. The parts mutually brace and maintain the container in shape, and the triangular parts 17 and partition portions at the sides of the recesses 20 are slightly springy, to engage over the wider portions of the eggs, preventing them from tilting in their compartments.

In Fig. 7 the outer container blank 29 has parallel score lines 30, 31, 32, and 33 from end to end, forming, in order named from left to right, a side wall 34, a bottom 35, a side wall 36, a cover 37, and a cover flap 38. The ends 39 project from the bottom 35 and widen outwardly, and have notches 40 in their outer edges, at their middles. Front end flaps 41 project from the ends of the front wall 34, and rear end flaps 42 project from the ends of the rear wall 36. Score lines 43, 43*a* and 43*b* extend across the junctions of the ends 39, and end flaps 41 and 42 with the bottom 35 and walls 34 and 36, respectively. Cuts 44 extend in along the score line 32, and diagonal score lines 45 extend from the inner ends of the cuts 44 to the adjacent corners of the bottom 35. Diagonal score lines 46 extend from the front corners of the bottom 35 to the left edge of the blank.

The container 29 is assembled in collapsed or knock-down condition by folding the end walls 39 in upon the bottom 35, and then folding the triangular corner portions of the front and rear walls, on the score lines 46 and 45, to bring their flaps 41 and 42 over the infolded end walls 39, to which the flaps are secured, preferably by adhesive. The cover 37 and its flap 38 is then folded on the score line 32 to lie over the parts folded in at the ends. The container 29 is set up for use simply by raising the cover 37 and its flap 38 from these end parts and pulling outwardly and upwardly on the end walls 39, causing folding at the score lines 43*a* and 43*b* of the front and rear walls and their flaps and a straightening at the diagonal score lines 45 and 46 and a raising of the front and rear walls 34 and 36, so that they and the end walls 39 stand up from the bottom, with the end walls 39 at right angles to the bottom but with the side walls slanting outwardly in their upward extent from the bottom 35. The front wall 34 is not as high as the rear wall 36 and end walls 39.

The parts are so proportioned that when the

inner container 1 is set into the outer container 29 the front and rear bottom corners of the inner container, at lines 5 and 6, rest against the diverging front and rear walls 34 and 36 of the outer container, and the projections at the ends of the top of the inner container, formed by the assembled parts 4 and 27, rest in the notches 40 in the upper edges of the end walls 39 of the outer container with their upper edges substantially even with said upper edges. The upper edges of the front and rear walls 34 and 36 will be even with the outer walls 12 of the inner container, and the ends of the inner container walls 9 and 15 and bottom 10 will fit snugly against the end walls 39 of the outer container, with the inner container end walls 22 and 24 spaced in from the outer container end walls 39. The cover flap 38 goes into the space between the front wall 35 of the outer container and the adjacent outer wall 12 of the inner container, and the cover 37 is supported by the ridge formed by the attachment of the inner container parts 28 and 26, so as to be spaced up from the top of the inner container. The diverging walls 34 and 36 of the outer container hold the inner container 1 up so that there is a space between its bottom 10 and the bottom 34 of the outer container. The partition lugs 19 projecting below the inner container bottom 10 do not necessarily contact with the outer container bottom 35 normally, but they act as stays to limit upward bending of the bottom 35. It is seen, therefore, that on all of the six sides of the inner container the outer container walls are spaced from the inner container and are well stayed or braced against inward collapse. This provides an effective cushion entirely around the inner container 1.

I have described my invention specifically as designed and proportioned for a certain specific use, but it will be understood that modifications may occur, and that I am not limited to such precise disclosure, but what I claim as new and desire to secure by Letters Patent is:

1. In an egg carton, an outer container increasing in width between its bottom and its top, and an inner container with its lower edges seated against portions of the sides of the outer container where said outer container increases in width, with the bottom walls and side walls of the two containers spaced apart, and a closure for the outer container.

2. In an egg carton, an outer container increasing in width between its bottom and its top, and an inner container with its lower edges seated against portions of the sides of the outer container where said outer container increases in width, with the bottom walls and side walls of the two containers spaced apart, said inner container having a stiffening member on its top, and a closure for the outer container having a portion prevented by said ridge from yielding toward the inner container.

3. In an egg carton, an outer container increasing in width upwardly between its bottom and its top, and an inner container with its lower edges against portions of the sides of the outer container where said outer container increases in width, and the ends of the containers having parts engaging together near their tops, whereby the inner container is supported in the outer container with the bottom walls and side walls of the two containers spaced apart, and a closure for the outer container.

4. In an egg carton, an outer container increasing in width upwardly between its bottom and its top, and an inner container with its lower edges against portions of the sides of the outer container whereby the inner container is supported in the outer container by the side walls of the outer container, with the bottom and side walls of the two containers spaced apart, the inner container having its end walls set inward from the ends of its side walls and spaced from the end walls of the outer container by the ends of said side walls, and a closure for the outer container.

5. In an egg carton, an outer container increasing in width upwardly between its bottom and its top, and an inner container comprising two longitudinally extending sections with their adjacent side walls connected together, members directly and positively connecting these side walls with the opposite side walls, and cross partitions folded down from said members, said inner container having its lower edges seated against portions of the sides of the outer container where said outer container increases in width, and a closure for the outer container.

6. In an egg carton, a container comprising two longitudinally extending sections with their adjacent side walls connected together, members folded across from the opposite side walls and attached to the respective adjacent walls, and cross partitions folded down from said members.

7. In an egg carton, an outer container increasing in width between its bottom and its top and having notches in the upper edges of its end walls, and an inner container comprising two longitudinal sections with their adjacent side walls connected together at their tops, members folded across from the tops of the opposite side walls and attached to the upper parts of the respective adjacent walls, and cross partitions folded down from said members, said upper parts of the adjacent side walls and the parts of the folded-across members attached thereto having extensions at their ends entering the respective end wall notches of the outer container, and a cover for the outer container.

8. In an egg carton, an outer container increasing in width between its bottom and its top, and an inner container comprising two longitudinal sections with their adjacent side walls connected together at their tops, members folded across from the tops of the opposite side walls and having edge parts turned up and attached to the upper parts of the respective adjacent walls, and cross partitions folded down from said members, and a cover for said outer container having a portion prevented by the attached parts of the adjacent walls and cross members from yielding toward said inner container.

9. In an egg carton, an outer container increasing in width between its bottom and its top, and an inner container comprising two longitudinal sections with their adjacent side walls connected together at their tops, members folded across from the tops of the opposite side walls and having edge parts turned up and attached to the upper parts of the respective adjacent walls, and cross partitions folded down from said members, each end wall of the outer container having a notch in its upper edge and the attached upper parts of the adjacent side walls and cross members of the inner container having extensions at their ends entering the respective end wall notches of the outer container, and a cover for the outer container having a portion

prevented by the attached parts of said inner container walls and cross members from yielding toward said inner container.

10. In an egg carton, a container consisting of a single sheet having a median longitudinal fold and at least three parallel folds at each side of said median fold, forming adjacent side walls, bottom walls, outer side walls and top cross extensions, said cross extensions having their outer edges attached to the respective adjacent walls near said median fold, and having cross partitions cut therein and folded down therefrom.

11. In an egg carton, a container consisting of a single sheet having a median longitudinal fold and at least four parallel folds at each side of said median fold, forming adjacent side walls, bottom walls, outer side walls, top cross extensions and attaching flaps on said cross extensions, said flaps being attached to the respective adjacent walls near said median fold, and said cross extension having partitions cut therein and folded down therefrom.

12. In an egg carton, a container consisting of a single sheet having a median longitudinal fold and at least three parallel folds at each side of said median fold, forming adjacent side walls, bottom walls, outer side walls and top cross extensions, said cross extensions having their outer edges attached to the respective adjacent walls near said median fold, and having cross partitions cut therein and folded down therefrom, said cross partitions having tongues on their lower edges and said bottom walls having openings receiving said tongues.

13. In an egg carton, a container comprising a bottom and side walls, a member folded across from the top of one side wall and having its edge attached to the upper part of the other side wall, and cross partitions cut in and folded down from said member, each cross partition having its lower corners omitted leaving intact portions in the corners of the space from which the partitions are cut, and having a tongue on its lower edge, one partition being joined to the side walls by said intact portions of the next adjacent space and having a recess in its top edge from which the tongue of the next adjacent partition is cut, whereby eggs can fit between side edges of the recesses, and said bottom wall having openings receiving the respective tongues.

14. In an egg carton, a container comprising a substantially flat bottom and also comprising side walls, a member folded across from the top of one side wall and having its edge attached to the upper part of the other side wall, cross partitions cut in and folded down from said member, each cross partition having a tongue extending from its lower edge and having its lower corners cut so as to form upwardly diverging edges adjacent thereto, and to leave intact portions in said corners joining the next adjacent partition to the side walls, said bottom wall having openings receiving the respective tongues with the diverging edges abutting the ends of said openings.

15. In an egg carton, an outer container comprising a single sheet folded on parallel lines to form a bottom wall and side walls and having end walls extending out from said bottom and end flaps extending from said side walls and folded across the container and attached to said end walls, said side walls having diagonal folds from their lower corners to their upper edges, the end walls to be folded inward with their side walls extended outward, and an inner container fitting in the set up outer container in a bracing relation thereto for preventing inward collapse of the end walls and thereby limiting outward movement of the side walls of the outer container, said inner container provided with means for holding the inner container up from the bottom of the outer container.

16. In an egg carton, an outer container comprising a single sheet folded on parallel lines to form a bottom, side walls and a cover hinged to one side wall and having cuts extending in along the cover hinge from each end thereof, and having end walls extending from said bottom and end flaps extending from said side walls, said container being assembled in collapsed condition by folding the end walls and triangular corner parts of the side walls across the bottom and attaching the end flaps to the end walls, the triangular parts of the rear walls being permitted to fold in by said cuts with the side walls remaining extended outward and the end walls folded inwardly, said container being set up for use by pulling the end walls outward, causing the end flaps to fold on the side walls and straightening said corner parts on the side walls and pulling the side walls inward and upward, an inner container fitting in the set up outer container with bearings on the side and end walls thereof preventing the inward collapse of the end walls, thereby limiting outward movement of the side walls of the outer container, said inner container having downwardly extending tongues holding said inner container up from the bottom of the outer container.

17. In an egg carton, an outer container comprising a single sheet folded on parallel lines to form a bottom and side walls and having end walls extending from said bottom and increasing in width from the bottom outward, having end flaps extending from said side walls and folded across the container and attached to said end walls, said side walls diverging upwardly in conformity with the shape of the end walls, said side walls having diagonal folds from their lower corners to their upper edges, allowing the end walls to be folded inward with its side walls extended outward, an inner container fitting in said set up outer container having lower edges seating against the respective diverging side walls of the outer container and thereby preventing the inward collapse of the end walls and thereby limiting outward movement of the side walls of the outer container, said container having tongues intermediate said lower edges spacing the bottom of said container from the bottom wall of said outer container, and a cover for said outer container.

SAMUEL BERGSTEIN.