Oct. 16, 1956 A. CORMIER 2,766,924

MULTIPLE COMPARTMENT CONTAINERS

Filed Feb. 19, 1954 2 Sheets-Sheet 1

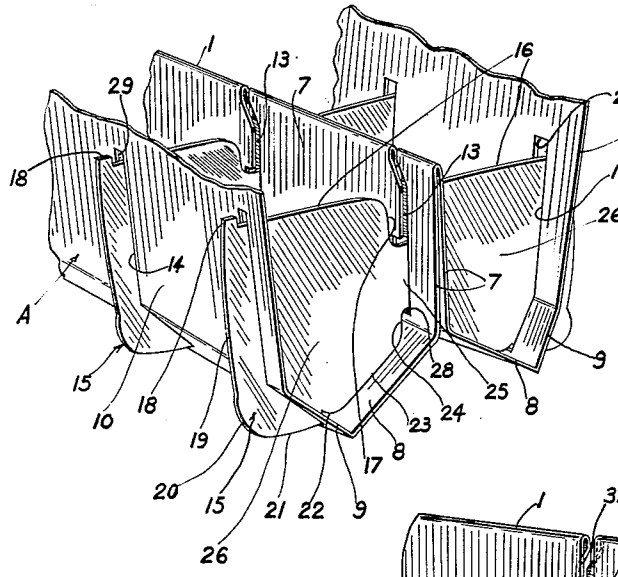


Fig. 1

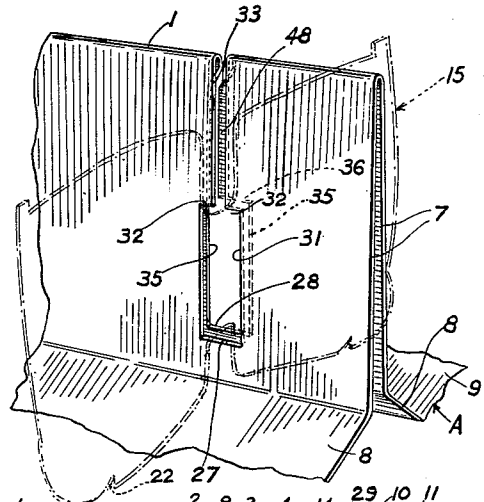


Fig. 2

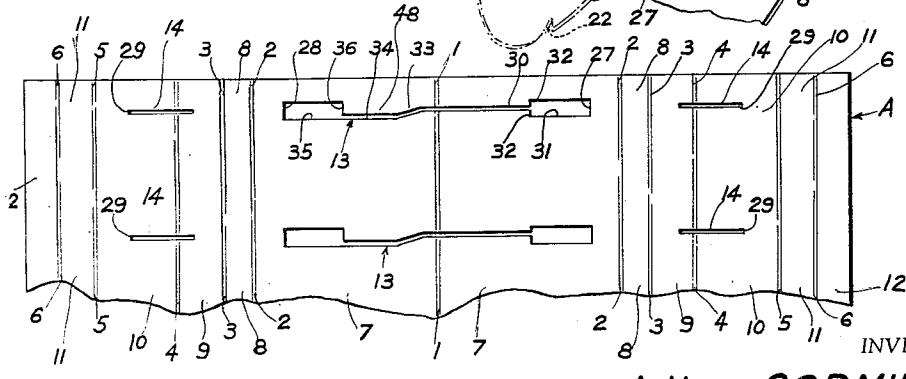


Fig. 3

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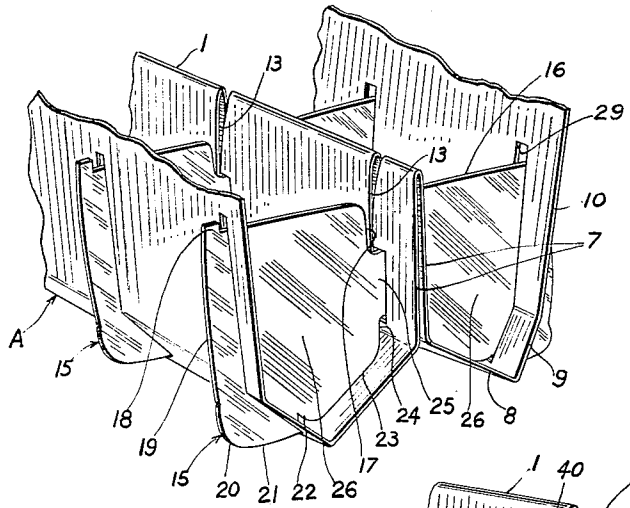


Fig. 4

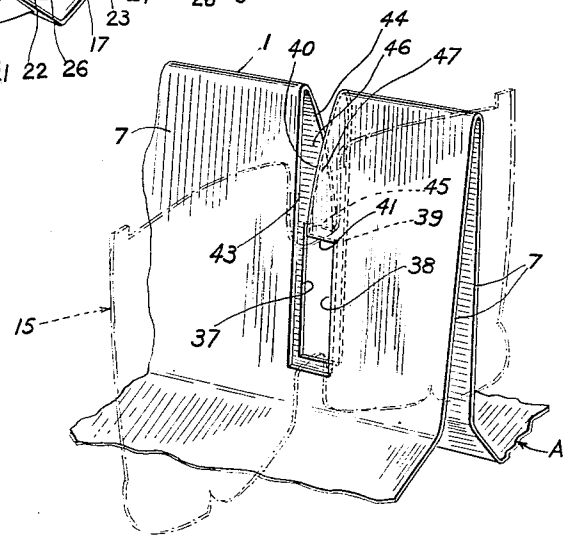


Fig. 5

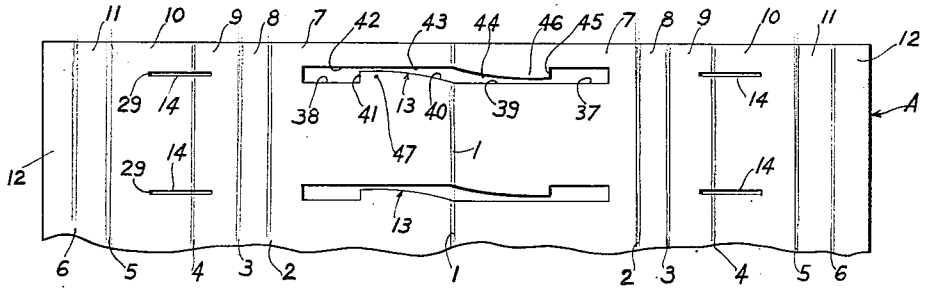


Fig. 6

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MULTIPLE COMPARTMENT CONTAINERS

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Application February 19, 1954, Serial No. 411,533

6 Claims. (Cl. 229—28)

The present invention relates to a multiple compartment container and more particularly to a folding box of the class generally employed in packaging and shipping quantities of eggs and other fragile objects.

Boxes of the character described are usually manufactured by providing a body member to form the longitudinal walls, bottom and cover of the box and having a plurality of slots for the reception of transverse partition members.

In collapsing the empty box, the transverse partition members lie flat against the side walls of the box, whereby the latter is very compact. To open the box to insert eggs or the like fragile articles, the cover members are spread open until the side walls abut against the lugs projecting upwardly from the outer edge of the transverse partitions, but this opening movement is possible only if the transverse partitions are in their proper positions in the side wall slots so that said slots may pass over the upper and bottom edges of the transverse partitions. It frequently happens that, during manipulation of the collapsed boxes the transverse partitions are accidentally moved upward so that their middle uppernotch will engage the upper end of the side wall slots, in which it is impossible to open the box without tearing the partition members or without replacing said partition members one by one in their proper positions. This accidental upward displacement of the transverse partitions is due to the fact that they are not properly held in position by the middle longitudinal partition formed by the body member.

Another disadvantage of known boxes of the character described consists in that the middle longitudinal partition formed by the body member is not sufficiently held against transverse movement due to a faulty locking arrangement between said longitudinal partition and said transverse partitions. It thus frequently happens that the egg compartments on one side of the box open excessively and do not hold the eggs in their proper position when the compartments at the other side of the box are empty.

It is known to provide a projection on one edge of the slots made in the longitudinal middle partition of the body member in order to prevent displacement of the transverse partitions. But it has been found in practice that this single projection is insufficient to effect proper interlocking of the partitions. More particularly, when the box is in collapsed position with the transverse partitions lying flat against the side walls of the box; it has been found that it is very easy to displace said partitions upwardly within the slots of the side walls despite the presence of said projection; also it has been found that this projection does not prevent transverse displacement of the middle longitudinal partition when the box is half empty.

Accordingly, the general object of the present invention is the provision of a collapsible box of the character described having means to obviate the above mentioned defects.

A more specific object of the present invention is the provision in a box of the character described, of an improved locking arrangement between the transverse partition members and the longitudinal central partition of the box.

The foregoing and other important objects of the present invention will become more apparent during the following disclosure and by referring to the drawings in which:

Figure 1 is a partial perspective view of one embodiment of the multiple compartment folding box according to the invention;

Figure 2 is an enlarged partial perspective view of the longitudinal center partition showing a transverse partition in dot and dash lines;

Figure 3 is a partial plan view of the body member blank;

Figure 4 is a partial perspective view of a second embodiment of the box according to the invention;

Figure 5 is a partial perspective view of the longitudinal center partition of said second embodiment showing the transverse partition in dot and dash lines; and

Figure 6 is a partial plan view of the body member blank of said second embodiment.

Referring now more particularly to the drawings in which like reference characters indicate like elements throughout, Figure 3 shows a blank for the body member A of the cardboard box, according to the invention, which is provided with a longitudinal center score line 1 and with a plurality of pairs of spaced score lines 2, 3, 4, 5 and 6 extending on each side of and parallel to the center score line 1. The score lines 1 and 2 define between themselves two walls 7 which are adapted to form the longitudinal partition of the box while the inner and outer bottom portions 8 and 9 respectively of the box are defined by the score lines 2 and 3, and 3 and 4 respectively. The score lines 4 and 5 define between themselves the side walls 10 of the box, while the score lines 5 and 6 define between themselves the covers 11 of the box from each of which depends along line 6 the closing flap 12 adapted to extend inwardly within the box when the same is closed.

The body member A is provided with three sets of slots, said sets extending longitudinally along the blank, while the slots themselves are transversely disposed and aligned with each other in rows of threes. The slots 13 of the center set of slots are made in the walls 7 and extend across the center score line 1 an equal distance on both sides thereof and short of the score lines 2. The slots 14 of the two lateral sets of slots are made in bottom portions 9 and side walls 10 and extend across the fold lines 4.

Each transverse partition member 15, according to the invention, has a substantially straight top edge 16 with a central upper notch 17 and is provided at its outer ends with upwardly extending lugs 18. The outer edges of the lugs 18 merge with the side edges 19 of the partition 15; the lower rounded corners 20 merge with the lower edges 21 which are substantially parallel with the upper edges 16. The edges 21 have notches 22 and are extended by the upwardly inclined edge portions 23 which converge towards a bottom center notch 24 which is aligned with the upper center notch 17. The portion of the partition member 15 extending between the notches 24 and 17 forms the web 25 of the partition separating the same into symmetrical wings 26 adapted to extend on each side of the longitudinal partition 7 of the box according to the invention.

To assemble the box, the body member is first folded longitudinally along the center fold line 1 whereby the portions of said body members extending on each side of the line 1 are in contact with each other. The partitions 15

are then inserted through the aligned sets of side slots 14. After the partition members 15 have been inserted, the center partition walls 7 of the box are forced upwardly with respect to the side walls causing the body member to be folded along score lines 2, 3 and 4 and causing reversal in the direction of the fold along score line 1 which now becomes the top edge of the longitudinal partition of the box. During this movement, the web 25 of the partition members 15 engage the center slots 13 until the top edge 1 of the center longitudinal partition 15 extends well above the top edges 16 of the transverse partitions 15. The box has then the position shown in Figure 1, in which it is impossible to remove the transverse partitions 15 because the ends 27 and 28 of the center slots 12 engage the lower center notch 24 of said transverse partitions, and the top ends 29 of the side slots 14 prevent upward movement of the transverse partitions 15 relatively to the body member A because they abut against the top edges 16 of said partitions 15. The lugs 18 prevent further outward spreading of the side walls 10 of the box.

When the assembled box is folded for storage or shipment purposes, the side walls are brought flat against the center partition of the box and the transverse partitions are caused to lie flat against said side walls. The side wall slots 14 will then register with the center notches 17 and 24 of the partitions 15 whereby said transverse partitions 15 will be free to move upwardly with respect to the box until the upper notch 17 engages the side walls 10 whereby it becomes impossible to again spread open said side walls without tearing the transverse partitions 15.

Therefore it is necessary to provide locking means to maintain the transverse partitions 15 in their proper position, with the bottom of the notch 24 abutting against the outer ends 27 and 28 of the center slot 13 even when the box is in collapsed position, the side walls 10 and cover 11 lying flat against the center partition walls 7.

A first embodiment of the center slot 13 is shown in Figure 3, and comprises a straight slit 30 communicating at one end with the middle of an enlarged rectangular opening 31 to thereby define two shoulders 32 which are opposite to the outer end 27 of the slot 13. The slit 30 is inclined at 33 to provide an offset portion 34 in communication with an enlarged rectangular opening 35 and merges with one side of said opening 35 so as to provide the single shoulder 36 opposite the outer end 28. The openings 31 and 35 are aligned with each other and spaced an equal distance from and on opposite sides of the fold line 1. Therefore, when the box is in assembled position, the openings 31 and 35 register with each other and the shoulder 36 overlaps the shoulders 32. The transverse partitions 15 are prevented from moving upwardly relatively to the body A of the box because the web 25 abuts against the shoulders 32 and 36. It will be noted that the interlocking action between the center partitions walls 7 of the body members and the transverse partitions 15 remains efficient even when the box is in collapsed position and the partitions 15 lie flat against the side walls 10; because the web 25 of the transverse partitions 15 will always abut one of the shoulders 32 irrespective of the angular position of the partition 15 with respect to the body member A. On the other hand, the shape of the slot 13 just described permits easy insertion of the web 25 through the said slot 13 during the assembling operation of the box, because the web 25 will freely engage said slot and slide past the inclined portion 33.

The second embodiment of the center slot 13 is shown more particularly in Figure 6 and comprises two end enlarged rectangular openings 37 and 38 in mutual alignment, spaced an equal distance from the fold line 1 and intercommunicating by a slit defined on one side by a straight edge 39 aligned with and merging with one side of the rectangular opening 37 at one end. The straight edge 39 terminates at the fold line 1 and extends into an inwardly curved edge portion 40 meeting the inner edge of

the opening 38 near the side 42 of said opening to thereby define a shoulder 41. The opposite edge of the slit establishes communication between the openings 37 and 38 and has exactly the same shape as the edge just described except that it is reversed. More particularly, it comprises a straight side 43 aligned with and merging with the side 42 of opening 48 and extending up to the fold line 1, and an inwardly curved portion 44 joining the straight portion 43 and the inner end of the opening 37 to thereby define a shoulder 45 projecting in a direction opposite to the direction of the shoulder 41.

Therefore, when the box is in assembled position, as shown in Figures 4 and 5, there is formed two projections 46 and 47 respectively depending from opposite sides of the slot 13 in the center longitudinal partition of the box and each depending from an opposite wall 7 of said longitudinal partition to thereby extend in overlapping relationship over the top edge of the web 25 of the transverse partition 15, whereby the latter is prevented from moving upwardly relative to the body member A, irrespective of the angular position of said partition 15 with respect to the longitudinal partition.

The locking arrangement between the transverse and longitudinal partitions of the box, according to the first and second embodiments of the invention, also prevents transverse displacement of the center partition when the box is half empty, because the overlapping projections 46 and 47 of the second embodiment or the projection 48 of the first embodiment engage the side edges of the upper notch 17 of the transverse partition 15 when a lateral thrust is exerted upon the center partition.

In the two embodiments described, it will be noted that the longitudinal axis of that part of the restricted slits lying in at least one center partition wall 7 is parallel with the longitudinal axis of the enlarged portion in the same center partition wall, whereby the transverse partitions 15 may be inserted into the slots 13 without having to bend said transverse partitions.

While preferred embodiments according to the present invention have been illustrated and described, it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

I claim:

1. A folding box having a plurality of compartments, comprising a body member folded to provide longitudinal side walls, bottom walls and a double walled center partition, and having slots in the center partition extending downwardly from the upper edge thereof, said slots defining enlarged substantially rectangular portions at both ends and a restricted intermediate portion connecting said enlarged portions, said intermediate portion having its opposed edges in one partition wall aligned with a side edge of one enlarged portion, and having the opposed edges in the other partition wall aligned with the side edge of the other enlarged portion disposed opposite said side edge of said one enlarged portion to thereby form overlapping projections extending within said slots.

2. A folding box having a plurality of compartments comprising a body member folded to provide longitudinal side walls, bottom walls and a double walled center partition extending longitudinally between said side walls and having slots in the center partition extending downwardly from the upper edge thereof, said slots defining enlarged substantially rectangular portions in each wall of said center partition and in registering relationship, said enlarged portions being connected by a restricted intermediate portion extending in the two walls of said center partition, the part of said restricted portion extending in one wall of said center partition being offset relative to the part of said restricted portion extending in the other wall of said center partition, the longitudinal axis of at least one of said parts being substantially parallel with the longitudinal axis of its associated enlarged portion, said restricted intermediate portion forming shoul-

ders at its junction with the respective enlarged portions, said shoulders overlapping each other.

3. A folding box having a plurality of compartments comprising a body member folded to provide longitudinal side walls, bottom walls and a double walled center partition extending between and longitudinally of said side walls, and having slots in the center partition extending downwardly from the upper edge thereof, each of said slots consisting of two registering enlarged substantially rectangular slot portions made in the respective walls of the center partition at the bottom of said slots, and of a restricted slit of smaller width than the smallest dimension of said enlarged slot portions, and extending from said enlarged portions upwardly to the upper edge of said center partition, the part of said slit which extends in one wall of said center partition opening in the middle of the upper end edge of the associated enlarged portion thereby defining two inwardly facing shoulders at said end edge, said part of said slit being coaxial with the longitudinal axis of said associated enlarged portion, the other part of said slit which extends in the other wall of said center partition being inclined at least in part, and being offset with respect to said first mentioned part of said slit and merging with one side of its associated enlarged portion to thereby define a shoulder overlapping said two first mentioned shoulders.

4. A blank for a folding box of the character described, said blank consisting of a rectangular sheet of foldable material provided with a center fold line and a plurality of lateral fold lines extending in spaced parallel relationship on both sides of said center fold line, said blank having a set of transversely extending slots aligned longitudinally of said blank and each slot of said set extending an equal distance from and on both sides of said center fold line, each slot consisting of two transversely aligned enlarged substantially rectangular portions at the ends thereof and of an intermediate restricted portion connecting said enlarged portions, the part of said restricted intermediate portion extending between said center fold line and one of said enlarged portions having its longitudinal axis substantially parallel with the longitudinal axis of said one of said enlarged portions and being offset with the other part of the restricted portion extending between the center fold line and the other enlarged portion, said restricted intermediate portion forming shoulders at its junction with the respective enlarged portions, said shoulders overlapping each other.

5. A blank for a folding box of the character described, said blank consisting of a rectangular sheet of foldable material provided with a center fold line and with a plurality of lateral fold lines extending in spaced parallel relationship on both sides of said center fold line, said blank having a set of transversely extending slots aligned longitudinally of said blank and each slot of said set extending an equal distance from and on both sides of said center fold line, each slot consisting of transversely aligned enlarged substantially rectangular portions at both ends thereof and of an intermediate restricted portion connecting said enlarged portions, the part of said restricted portion on one side of said center fold line being offset relative to the part of said restricted portion on the other side of said center fold line, said first named part having one edge merging with and aligned with one side edge of its associated enlarged portion, and said second named part having one end opening along the center longitudinal axis of its associated enlarged portion, said second named part having its longitudinal axis coaxial with the longitudinal axis of its associated enlarged portion, so constructed and arranged as to define two inwardly opposed steps between the opposite edges of said second named part of said restricted slot portion at said last named end and the opposite side edges of the enlarged portion associated with said second named part.

6. A blank for the body member of a folding box having a plurality of compartments, said blank consisting of a rectangular sheet of foldable material provided with a longitudinally extending center fold line and a plurality of spaced fold lines extending on both sides of said center fold line and parallel therewith, said blank having a set of center slots transversely disposed across said center fold line, each of said slots comprising a pair of transversely aligned enlarged substantially rectangular portions spaced an equal distance from said center fold line and a restricted intermediate portion connecting said enlarged portions, the part of said restricted portion lying on one side of said center fold line being transversely offset relatively to the part of said restricted portion lying on the other side of said center fold line whereby said parts form two oppositely extending projections depending from the opposite edges of said parts, one on each side of said center fold line, said projections forming oppositely directed shoulders with the adjacent enlarged portions, and the longitudinal axes of said two parts being substantially parallel with the longitudinal axes of their associated enlarged portions.

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