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MULTI-PARTITIONED CONTAINER

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This invention relates to a container having a number of compartments, and more particularly to such a container which is formed from a single sheet of foldable material.

In packaging fragile manufactured articles, such as glass vials, precautions must be taken to insure that these articles are not thrown against each other and broken. Fragile articles of this type are accordingly conventionally packaged in containers which are subdivided by partitions. These partitioned containers require a container body and partitioned members which subdivide the interior of the body to provide a number of compartments into which the goods are inserted. These containers must be relatively strong and rigid to adequately protect their fragile contents. When containers of this type are used to package fragile goods which are sold in large quantities in a competitive market, the cost of such a container cannot be disregarded.

An object of this invention is to provide a novel structure for a multi-partitioned container made of foldable material which adequately protects fragile contents and which lends itself to economical fabrication, particularly by automatic methods.

In accordance with this invention a novel structure for a multi-partitioned container is fabricated from a single sheet of foldable material. The layout pattern for this sheet includes a pair of side panels joined by an end panel. Another end panel and a corresponding tab are joined to the remote ends of these side panels. Partitioning panels are joined to aligned edges of these side panels and include tongues which extend and meet in pairs across the interior of the container when the partitioning panels are folded inwardly against the side panels. These pairs of tongues are securely fastened to each other to form partitions across the container. Bottom side and bottom end panels, respectively joined to the side and end panels, interlock with each other to maintain the carton squarely erected.

A particularly advantageous bottom construction includes a slot of predetermined length formed by the bottom end panels and one of said bottom side panels. The other bottom side panel has a tongue of substantially the same predetermined length which is inserted into this slot to securely interlock the bottom panels and maintain the carton squarely erected. This slot may be formed by a longitudinal cutout in one of the bottom side panels and a projection on both bottom end panels. This firmly squared bottom is formed by folding the bottom end panels over the cutout bottom side panel and then folding the other bottom side panel over the end panels and inserting its tongue within the slot so that the bottom end panels are firmly held between the bottom side panels.

Novel features and advantages of the present invention will become apparent to one skilled in the art from a reading of the following description in conjunction with the accompanying drawings in which:

Fig. 1 is a perspective view partially broken away of an erected embodiment of this invention;

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Fig. 2 is a plan view of the bottom of this embodiment; and

Fig. 3 is a layout or pattern of a sheet of foldable material which is erected to form the embodiment shown in Figs. 1 and 2.

Referring to Figs. 1 and 2 a multipartitioned container or carton 10 is subdivided into a number of compartments 12 by pairs of tongues 14 which extend and meet across the interior of the carton 10 when partitioning panels 16 are folded inwardly against the side panels 18. These tongues are securely fastened to each other by glue 20, for example, which is deposited on their mating surfaces.

Side panels 18 are joined by an end panel 22. Another end panel 24 and a corresponding tab 26 are joined to the remote ends of these side panels 18. End panel 24 and tab 26 are joined, for example, by glue 28 applied to the surface of tab 26 which joins end panel 24. From Fig. 1 it is apparent that the glued joints between the pairs of tongues 14 and end panel 24 and tab 26 are aligned in a single row and may accordingly be easily joined by automatic folding and gluing machinery.

Fig. 2 illustrates how bottom side panels 30 and 32 and bottom end panels 34 interlock to maintain the carton securely and firmly erected without the use of a fastening material such as glue. As shown in Fig. 2 bottom side panel 30 and bottom end panels 34 overlap when folded to form a slot 36 of a predetermined length. The other side panel 32 includes a tongue 38 of substantially the same predetermined length as slot 36 which securely interlocks the bottom panels and maintains the carton 10 securely erected when it is inserted into slot 36.

The slot 36 is formed, for example, by a longitudinal cutout 40 in bottom side panel 30 whose base length is substantially equal to the length of the slot. The other side of slot 36 is formed by projections 42 of bottom end panels 34. Bottom end panels 34 gracefully taper from their junction with the end panels to their junction with the base of cutouts 40 to form the extremities of slot 36. Bottom side panel 32 also tapers from its junction with side panel 18 to the root of tongue 38. The visible edges of end panels 34 and tongued bottom side panel 32 form substantially symmetrical triangles at each end of the bottom. These triangles in conjunction with the exposed base of slot 36 formed by cutout 40 in bottom side panel 30 form a neat and attractive bottom which is highly functional by virtue of the secure interlocking which maintains the carton squarely erected. The insertion of tongue 38 within slot 36 firmly holds the bottom end panels 34 locked between bottom side panels 30 and 32. Longitudinal confinement of tongue 38 within slot 36 prevents relative endwise motion between the side and end panels to maintain the bottom members firmly and securely locked. This bottom configuration is highly advantageous in forming and erecting the carton because it permits the carton to be easily yet securely and squarely erected without the use of glue or any other fastening means.

Fig. 3 is a layout or pattern of a single sheet of foldable material 44 from which the carton shown in Figs. 1, 2 and 3 is erected. Parts referred to in discussing Figs. 1 and 2 as joined to under each other are so joined by scoring which directs and facilitates folding and erection. Tongues 14 in partitioning panels 16 are formed by a punching operation, for example, which removes 3 sides of each tongue from the body of the partitioning panel 16 while the fourth edge 46 is perforated and scored to facilitate folding across the interior of the carton to meet the corresponding tongue. The free ends 48 of the tongues 14 are tapered to facilitate alignment and joining.

Spots of glue 20 and 22 are respectively applied to

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the face of each of the tongues 14 and end panel tab 26 on one side of the sheet. These spots respectively and securely fasten the pairs of tongues 14 and end panel 24 to end tab 26. These spots of glue may be applied to the pattern before it enters an automatic erecting machine. A strip 50 along the edge of partitioning panels 16 remote from side panels 18 is glued on the reverse side of sheet 44. This glue firmly secures the partitioning panels 16 within and against side panels 18 when partitioning panels 16 are folded over and within side panels 18. Glue strip 50 may be applied either prior to or by an automatic erecting machine.

A sheet 44 patterned as shown in Fig. 3 and folded and erected as shown in Figs. 1 and 2 forms a surprising rigid and square container of attractive appearance. The outer appearance of the container is particularly smooth and attractive because all perforated or jagged elements, such as partitioning panels 16, from which tongues 14 are punched, are concealed within container 10.

What is claimed is:

1. A structure for a multi-partitioned carton comprising a sheet of foldable material, said sheet including a pair of rectangular side panels joined by a rectangular end panel, overlapping tabs joined to the remote ends of said side panels, a partitioning panel joined to aligned edges of each of said side panels, said partitioning panels including tongues which extend outwardly a distance less than the width of said end panel, said tongues having a side and both upper and lower edges completely separated from said partitioning panel and the other side attached and scored to facilitate its outward folding from said partitioning panels after said partitioning panels have been folded within and against said side panels, said attached sides of said tongues being corresponding sides of each of said tongues and being disposed substantially

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parallel to the junction between said end and side panels, said attached sides of tongues upon each of said partitioning panels being disposed substantially equidistantly from the adjacent edges of said end panel to cause the faces of tongues extending from each of said partitioning panels to contact each other and superpose when said side and infolded partitioning panels are folded over each other with said end panel disposed to form a flat continuation of the side panel whose adjacent tongues have free edges lying closest to said end panel, and glue being applied to a face of each of the contacting pairs of tongues prior to superposition to cause said contacting pairs to adhere to each other to provide a squarely partitioned erected carton when said side panels are rotated about their boundaries with said end panel to parallel positions relative to each other.

2. A structure as set forth in claim 1 wherein said partitioning panels are joined to said side panels by scored boundaries to facilitate said inward folding within said side panels, and glue is applied to mating surfaces at the outer portion of said partitioning and the bottom of said side panels to maintain said inwardly folded side panels in firm engagement within and against said side panels.

3. A structure as set forth in claim 2 wherein said attached edges of said tongues are perforated and scored to facilitate their outward folding after being glued to said mating tongues.

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