

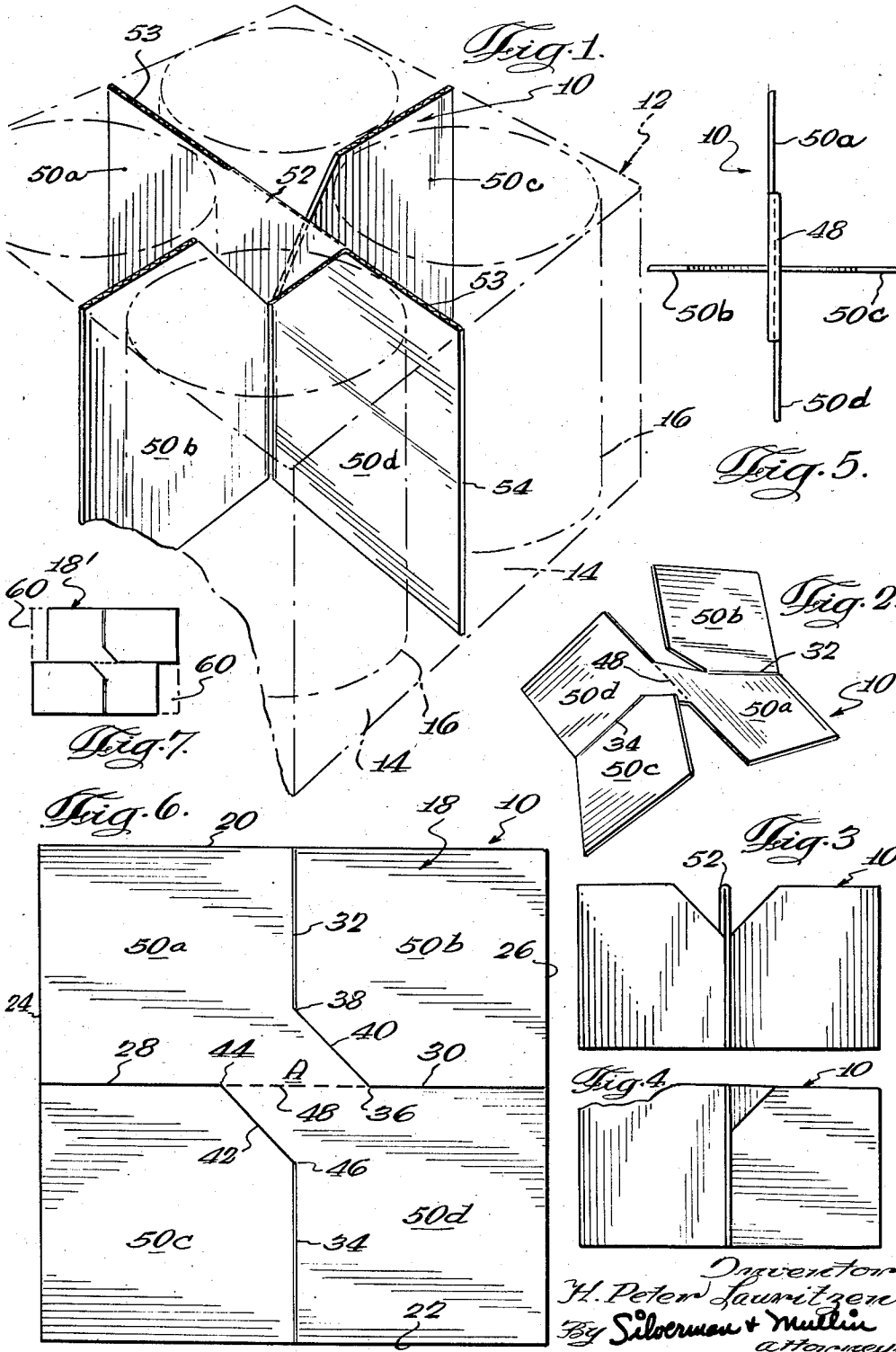
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PARTITION STRUCTURE FOR CONTAINERS

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PARTITION STRUCTURE FOR CONTAINERS

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This invention relates generally to containers of the type in which merchandise is packaged and transported, such as corrugated paperboard cartons, and more particularly, relates to a novel unitary partition structure for such containers.

Where receptacles of relatively small size are to be packaged and shipped by the manufacturers, it is more practical and economical to package a plurality of individual receptacles in a single container. To facilitate packaging and to prevent damage to the receptacles en route, a partition structure is employed to form separated compartments on the interior of the container for the individual receptacles. This practice is familiar in the shipping of paint products, for instance, or food jars—and many other examples which will readily occur to those skilled in this art. Although there are available partition structures employed in the packaging and shipping of merchandise of this general nature, many disadvantages have been attendant therewith, among which are, lack of suitable simplicity of fabrication and assembly therefor, lack of a highly economical structure and lack of a unitary partition structure which occupies a relatively smaller volume of space until erected for use in the container.

Accordingly, it is a primary object of this invention to provide a partition structure for such containers which by reason of its novel construction will substantially eliminate the disadvantages hereinabove enumerated.

Another important object of the invention is to provide a unitary partition structure of the character described which may be die cut from larger sheets of material in a simple operation conducive to highly economical manufacture thereof by mass-production techniques.

Another object of the invention is to provide a partition structure of the character described which comprises a pre-formed sheet member of corrugated paperboard or equivalent planar flexible material which has been scored and cut in accordance with a predetermined pattern which enables the sheet member to be erected swiftly and easily to provide said partition structure completely ready for insertion in the container.

Another object of the invention is to provide a unitary partition structure of the character described which when erected is generally of cruciform configuration and comprising two pairs of upright panels or walls in which each pair has the walls thereof conjoined substantially at right angles one to the other, and said pairs of conjoined panels or walls are interconnected along the upper edge respectively of a panel of each pair.

These and other objects of the invention will become apparent as the disclosure evolves. To contribute to a full understanding of the invention, a preferred embodiment has been described in detail in the specification and illustrated in the accompanying drawing. However, it is contemplated that minor variations are possible without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:

Fig. 1 is a perspective view of the partition structure

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embodying the invention and shown in solid lines installed in a container illustrated in phantom outline.

Fig. 2 is a perspective view of the partition structure illustrating the manner in which same is erected from a preformed blank.

Fig. 3 is a side elevational view of the partition structure in erected condition and Fig. 4 is a side elevational of said partition structure rotated approximately ninety degrees from its disposition illustrated in Fig. 3.

Fig. 5 is a fragmentary top plan view of the erected partition structure.

Fig. 6 is a plan view of the pre-formed sheet or blank from which the partition structure is erected.

Fig. 7 is a view similar to Fig. 6, but of a modified form.

Referring now to the drawing, the partition structure embodying the invention has been designated generally by the reference character 10. The function performed by the partition 10 may be recognized from Fig. 1 where same is shown installed on the interior of a container seen in phantom outline 12 to provide individual compartments 14 of generally rectangular cross-section. Also illustrated in phantom outline 16 are receptacles or cans seated in each compartment, each receptacle 16 being separated from the receptacle stored in the adjacent compartment by a vertical wall or panel provided by the partition structure 10. The container 12 may comprise the familiar corrugated paperboard type of container although the invention is in nowise limited by reason of the material from which the container is formed.

Partition structure 10 is formed from any suitable sheet material such as corrugated paperboard specifically illustrated in the drawing, although other materials such as pressed board, and the like are practicable. Referring to Fig. 6, the structure prior to being erected may be seen to comprise a rectangular blank whose dimensions are related to the interior dimensions of the container with which the same is to be used. Although not limited thereto, the particular blank illustrated is to be used in a container having a square cross section considered in a horizontal plane, and hence the blank is a geometrically complete rectangle. This will be explained in more detail hereinafter.

For purposes of description, parallel side edges 20 and 22 will be considered arranged in the length and parallel side edges 24 and 26 arranged in width of the blank 18. Substantially midway between the side edges 20 and 22 and parallel therewith are cut a pair of slits 28 and 30, the slit 28 opening at one end thereof to the side edge 24 and the slit 30 opening at one of its ends to the side edge 26. The slits 28 and 30 are aligned one with the other and terminate at their opposite extremities spaced from the transverse center of the blank. Perpendicular to the slits 28 and 30 and positioned on the transverse center line of the blank are a pair of score lines 32 and 34, the scoring 32 terminating at one end thereof at the side edge 20 and the scoring 34 terminating at one end thereof at the side edge 22. The opposite ends of the scoring each terminate spaced from the longitudinal center line of the blank and said lines of scoring 32 and 34 are aligned one with the other.

The end 36 of slit 30 and end 38 of scoring 32 are connected by a straight slit 40 which will be seen to be a continuation of the slit 30 and angularly offset relative to both slit 30 and score line 32. The slit 42 similarly connects the opposite ends 44 and 46 of the slit 28 and score line 34 respectively with the slits 42 and 40 being parallel in their angular disposition. The ends 44 and 36 of the slits 28 and 30 respectively are joined by a weakened line of fold 48 comprising a straight line of spaced apart perforations. The area A defined between the slits 40 and 42 and imaginary lines projected be-

tween ends 36 and 46 and ends 38 and 44 may be seen to form a parallelogram whose geometric center likewise is the geometric center of the blank 18.

Thus, as seen in Fig. 6, the slits 28 and 30 and score lines 32 and 34 divide the blank 18 into equally dimensioned panels 50a, 50b, 50c and 50d, the panels 50a and 50b being physically joined along the fold line 32 common to a side edge of each and the panels 50c and 50d likewise being joined along the fold line 34 common to a side edge of each. The panels 50a and 50d which appear disposed cater-corner one relative to the other are physically joined by the parallelogram portion A. It should be apparent that the blank 18 may be preformed in a simple die-cutting operation conducive to economical mass-production techniques. In its preformed, flat condition, the blank 18 may be stacked for storing in small volumes of space. It should also be appreciated that the overall size of the blank 18 may be varied in accordance with the dimensions of the container 12 in which same is to be used.

Referring to Fig. 2, the manner of erecting blank 18 for installation as a partition structure in container 12 is shown. The sequence of steps described hereinafter is only suggestive. The panel 50b is bent along fold line 32 in a direction toward panel 50a, and the panel 50c is bent in the same direction along fold line 34 toward panel 50d, until the two pairs of conjoined panels are arranged at right angles one to the other. The blank is then folded along perforated line 48 in a direction disposing the diagonal halves of parallelogram A on opposite sides of line 48 back to back and arranging said panels in a vertical disposition as seen in Figs. 3 and 4. The intermediate portion A as folded over along line 48 is seen at 52 in Fig. 3. Thus, in erected position, the panels 50c and 50b are co-planar with the fold 52 lying in the same plane. Likewise, panels 50a and 50d are co-planar.

The partition 10 may be seen to comprise two pairs of substantially rectangular panels or walls, the panels or walls of each pair being conjoined along a fold line common to a side edge of each and arranged at right angles one to the other. Also, one panel or wall of each pair is joined one with the other along the top edges 53, 53 thereof respectively, although it will be appreciated that the designation "top" is merely arbitrary. The erected partition structure may then be inserted into the interior of the container most conveniently by holding same by the folded-over connecting portion 52 and thereby dividing the interior of container 12 into four separate compartments 14 as illustrated in Fig. 1. The panels 50a, 50b, 50c and 50d cooperate to form the separating vertically arranged interior walls of these compartments, the side walls of the container forming the exterior walls of these compartments. With suitably selected dimensions for the said panels, each panel may have a side edge thereof abutting a side wall of the container on the interior thereof, the frictional engagement thereby afforded assisting in preventing collapse or displacement of the partition structure in the container. This is apparent in Fig. 1 where vertical side edge 54 of panel 50c abuts the interior of the adjacent side wall of the container 12. Of course, the vertical height of the partition structure will be selected to permit the container to be closed over the partition structure.

As previously stated the partition structure illustrated is intended for use with a container 12 whose configuration in plan is square. The reason for this is that the length of the blank 18, including the slits 28 and 30 and the perforated score line 48 will extend across the container 12, one of the resulting cruciform arms being the back to back folded panels 50a and 50d, and the other of the resulting cruciform arms being the right angle bent and aligned panels 50b and 50c, but of course having their dimension across the container 12 measured by the same slits 28 and 30. As for the height of the partition struc-

ture, it is the same as the depth of the interior of the container with which the partition structure is to be used. This dimension is controlled by the width of the blank 18, being one half of the width by virtue of the manner in which the blank is folded. The usual package 16 which will be housed in such structure will be substantially symmetrical about its vertical axis, as for example, a paint canister.

The invention is also applicable to use in containers whose plan configuration is rectangular or for housing packages of irregular shape—oval cross section bottles, for example. In such case the lengthwise dimensions of either pair of cater-corner panels is increased by half the difference between the long and short dimensions of the rectangular cross section container as shown in Fig. 7. It will thus appear that the panels forming the shorter dimension of the cruciform are less by the broken line sections 60. Instead of cutting away these portions 60, the blank 18' may be perfectly rectangular and the shorter panels scored so that the sections 60 may be folded back to be accommodated in the container.

It is believed that the invention has been described in detail sufficient to enable same to be understood and practiced by the skilled artisan. In describing the partition 10 it has been necessary to allude to specifications of size, arrangement, proportion and construction which it is contemplated should not be construed to unnecessarily limit the broad principles of the invention set forth in the claims appended hereto.

What it is desired to secure by Letters Patent of the United States is:

1. A partition structure of the character described comprising, a unitary assemblage of substantially rectangular upright panel members arranged in a substantially cruciform configuration, said assemblage including two pairs of panel members each having the panels thereof conjoined along a side edge of each in right angular disposition one relative the other, said pairs of conjoined panels being integrally connected along a line of fold arranged in the vertical plane common to a pair of individual panels and substantially normal to the plane of the other individual panels, said line of fold coinciding with the upper edges of said co-planar panels and the other panels of said pairs being separable one relative the other.

2. A partition structure as described in claim 1 in which there is an intermediate body portion connecting said first mentioned pair of individual panels at corners thereof and said line of fold is provided in said body portion.

3. A pre-formed blank for providing a partition structure adapted to be vertically arranged on the interior of a container for dividing same into a plurality of separated compartments comprising, a substantially rectangular sheet of flexible material having a pair of lines of fold and a pair of slits therein sub-dividing said blank into quadrants defining panel members, said lines of fold being aligned one with the other and each slit opening at one end thereof to a side edge of said sheet, the inner extremities respectively of said lines of fold being spaced one from the other, each slit having its opposite end connected with a respective said extremity, each panel being thereby conjoined with one adjacent panel along a said line of fold and separated from another adjacent panel by a said slit, each pair of conjoined panels having a panel thereof connected with a panel of the second pair of conjoined panels by an intermediate portion of said sheet member between said spaced apart extremities, said intermediate portion having a scored fold line extending between said slits, each slit including a straight portion and an angularly offset portion, said angularly offset portions being parallel one with the other and said lines of fold being substantially perpendicular to said straight portions.

4. A partition structure for installation in a container to separate same into individual compartments, said

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structure being formed from an integral, pre-formed blank of a flexible material and comprising, a cross-like arrangement of conjoined substantially rectangular panels, there being a first pair of panels arranged in a common vertical plane and connected together along a line of fold coincident with aligned horizontally extending edges of said first pair, and a second pair of panels each of which is connected along a vertically arranged line of fold with an edge of one panel of said first pair and at a right angle thereto, said right-angle connected panels being pivotal together relative one another on an axis defined by said horizontally arranged line of fold.

5. A structure as described in claim 4 in which there is an intermediate body portion comprised of a pair of substantially triangular-shaped segments conjoined edge-

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wise along said line of fold, each pair of right angle connected panels is connected to a said segment and the segments are disposed on opposite sides of said common vertical plane.

References Cited in the file of this patent

UNITED STATES PATENTS

782,544	Carrier	Feb. 14, 1905
1,216,094	Duganne	Feb. 13, 1917
1,542,024	Baar	June 16, 1925
2,140,001	Davitt	Dec. 13, 1938
2,308,177	Jones	Jan. 12, 1943
2,593,092	Bergstein	Apr. 15, 1952