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R. V. JOHNSON
CONTAINER DIVIDER

3,092,300

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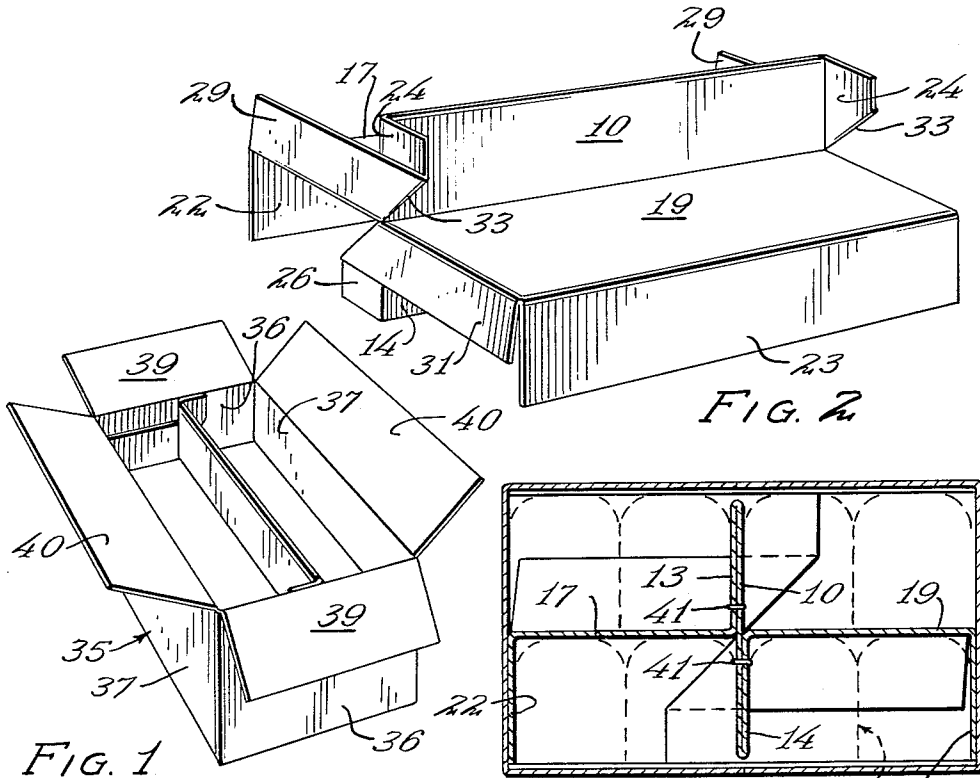


FIG. 1

FIG. 2

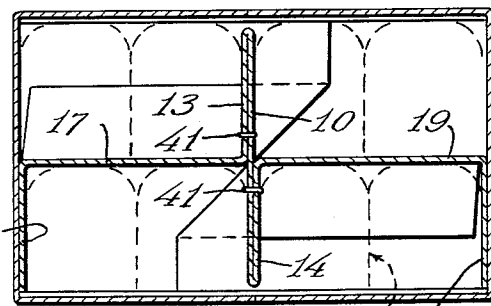


FIG. 3

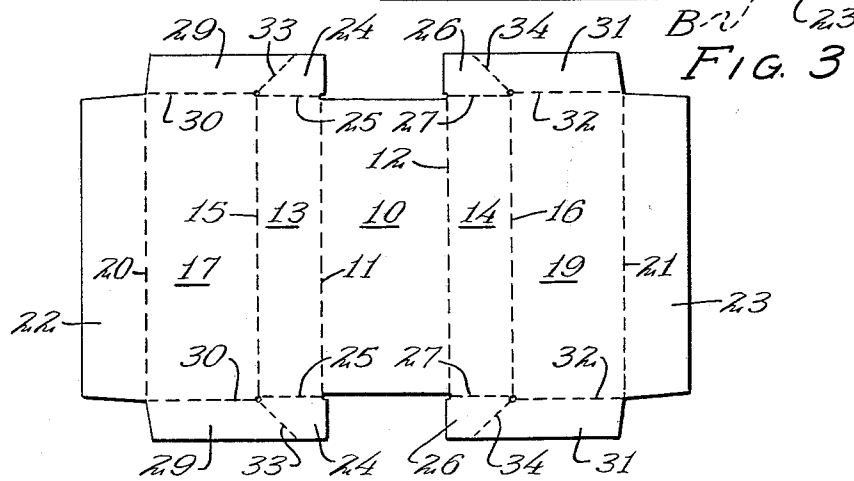


FIG. 4

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3,092,300

CONTAINER DIVIDER

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5 Claims. (Cl. 229-42)

This invention relates to an improvement in a container divider and deals particularly with a structure for dividing the interior of a rectangular container in four compartments.

In the delivery of a somewhat compressible product, such as fresh bread, the bread is often placed in rectangular containers which are capable of holding, for example, sixteen loaves of bread. In order to prevent the bread from being deformed by compression, a partition structure is usually employed which is capable of dividing the interior of the container into four sections of even size. The partition structure includes a central partition member which extends vertically through the full height of the container, and a horizontal partition member which divides the container into upper and lower compartments. The partition forming members, as well as the containers, are foldable into substantially flat form after the bread has been delivered, and the containers and partitions are returned and reused.

Many partition pads which are generally of the type illustrated in Patent 2,640,644 issued June 2, 1953 to R. J. Hennessey et al. have been produced and successfully used, such structures having been found to have one disadvantage. With the previous construction, there is nothing except the product itself to keep the central vertical partition member from tilting in one direction or the other out of vertical position. When the containers are stacked one above the other, the lowermost containers are subjected to considerable compressive force and a tendency is created to cause the downward bowing of the container covers. The difficulty is emphasized by the movement of the delivery truck over a motor highway. If such a crushing force is experienced, the central partition pad of the previous structure was not particularly effective in resisting downward bowing of the cover due to the fact that the vertical partition could merely swing out of vertical position. When this took place, there was a tendency not only to crush the loads by the vertical force, but also to apply a lateral squeezing force on certain of the loaves, resulting in a certain amount of damage. When the bread is on display, the customers will naturally select the uncrushed loaves and will refuse to take the damaged ones even though the quality of the bread has not changed.

It is an object of the present invention to provide a partition structure which acts to divide the body of the enclosing container into four compartments in the same manner as the previous dividers, but which incorporates a flap or flange structure which effectively holds the center partition in vertical position. As a result, the center of the container cover is effectively prevented from sagging and the contents are much more effectively protected.

A feature of the present invention resides in the provision of a partition forming member which includes in general a central vertical partition panel which extends

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the full height of the container, panels hingedly connected to opposite edges of said center partition panel which are, in the form illustrated, substantially one-half the height of the center partition panel, and horizontal partition panels which are hinged to the remaining parallel edges of the last mentioned half-height panels. A flange structure is hinged to each end of each horizontal partition panel and the adjoining half-height panel. The flanges which are hinged to the horizontal panels are connected to the half-height panels along diagonal lines of fold. As a result, when these flanges are folded in right angular relation to the panels to which they are hinged, the center partition panel structure is rigidly supported in right angular relation to the horizontal panels so as to provide a very effective resistance to the compression of the container.

A feature of the present invention resides in the provision of a simple partition member which is formed of a flat blank and which may be sold either in flat or partially folded form. As a result, the partition member can be stored in a relatively small space, and may be folded into its erected form or into its flat form with little difficulty.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specifications and claims:

In the drawings forming a part of the specification;

FIGURE 1 is a perspective view of a container showing the partition construction in place therein.

FIGURE 2 is a perspective view of the partition construction removed from the enclosing container.

FIGURE 3 is a sectional view through the container, showing the container contents in dotted outline.

FIGURE 4 is a diagrammatic view of the blank in which the partition-forming member is formed.

As indicated in FIGURE 4 of the drawings, the partition structure includes a generally rectangular center partition member 10, the edges of which are foldably connected along fold lines 11 and 12 to supplementary vertical partition panels 13 and 14 respectively. These panels 13 and 14, in the particular construction illustrated, are of substantially equal width, and are approximately one-half the width of the vertically partition panel 10.

The auxiliary vertical partition panels 13 and 14 are hingedly connected along parallel fold lines 15 and 16 to horizontal partition forming panels 17 and 19, respectively which are of a width equal to substantially one-half the width of the internal dimensions of the outer container. The horizontal partition panels 17 and 19 are preferably hingedly connected along parallel fold lines 20 and 21 to supporting panels 22 and 23 respectively, which are also, in the arrangement illustrated, of a width equal to one-half the height of the outer container.

If the interior of the container is not to be divided into equal sized compartments, the proportions of the auxiliary vertical partition panels 13 and 14 and of the supporting panels 22 and 23 may be varied accordingly.

A flange structure is hingedly connected to the ends of the auxiliary vertical partition panels 13 and 14 and the horizontal partitions 17 and 19 as indicated in the drawings. Flange portions 24 are hingedly connected to the opposite ends of the panel 13 along parallel fold lines 25, and similar flange portions 26 are hingedly connected

to the ends of the panel 14 along parallel fold lines 27. Flange portions 29 are hingedly connected to opposite ends of the horizontal partition panel 17 along parallel fold lines 30, and similar flange portions 31 are hingedly connected to opposite ends of the horizontal partition panel 19 along parallel fold lines 32. In actual practice, the fold lines 25 and 27 are aligned and are slightly offset from the fold lines 30 and 32 in order to compensate for the thickness of the paperboard in folded condition of the partition structure.

The flange portions 24 and 29 are hingedly connected along diagonal fold lines 33 which extend at substantially forty-five degrees with respect to the fold lines 25. The flange portions 26 and 31 are also connected along diagonal fold lines 34 which are preferably at substantially a forty-five degree angle with respect to the fold lines 27. As a result, the diagonal fold lines 33 and 34 at each end of the blank converge from the junctures of the fold lines 25 and 27 with the fold lines 15 and 16 respectively.

The outer container is indicated in general by the numeral 35, and may be any desired form of rectangular container. Due to the fact that it is advantageous to collapse the containers 35 when not in use, these containers are preferably regular style containers having parallel end walls 36 and parallel side walls 37 connected in tubular collapsible relation. End flaps 39 are hinged to the upper and lower edges of the end walls 36, and side wall flaps 40 are hingedly connected to the upper edges of the side walls 37. These flaps may be folded inwardly in superimposed relation to close the containers, and the upper and lower ends of the container may be temporarily held in closed position by tape or other means which may be removed or slit in order to collapse the container.

When in use, the auxiliary partition panel 13 is folded into face contact with one side of the vertical partition panel 10 as indicated in FIGURE 3 to extend downwardly therefrom. The auxiliary vertical partition panel 14 is also folded upwardly into face contact with the panel 10 shown in this figure. If desired, the auxiliary panels 13 and 14 may be stitched or otherwise secured to the panel 10 as indicated at 41.

The folding of the partition panel, the center partition panel 10, together with its auxiliary central partition panels 13 and 14 are folded upwardly into right angular relation to the horizontal partition panels 17 and 19. The flange structures 24, 29 at the ends of the panels 13, 17 are folded along the fold lines 33 to extend at right angles to the panels to which the flange portions are attached. The flanges 29 then extend upwardly from the partition panel 17, and the flange portions 24 extend at right angles to the panel 13. The flange structure 26, 31 connected to the panels 14, 19 are then folded so that the flange portions 31 hinged to the ends of the horizontal panel 19 extend downwardly from the end edges thereof, and the flange portions 26 which are hinged to the panel 14 extend at right angles to this panel. The supporting panels 22 and 23 are folded downwardly and the partition structure is inserted into the container 35.

In a container of this type, the vertical partition may either be inserted between the bread loaves B, or the partition structure may be inserted into the empty container before either the top or bottom closure is secured, and the loaves of bread may be inserted into the case from the top and bottom thereof. The partition structure could also be used in conjunction with an end opening container in which the loaves may be inserted into the container from the ends thereof before the flange structure has folded.

In accordance with the patent statutes I have described the principles of construction and operation of my improvement in container divider, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that changes may be made

within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A partition structure including, in series, a horizontal partition panel, a first auxiliary vertical partition panel, a vertical partition panel, a second auxiliary vertical partition panel, and a second horizontal partition panel, said panels being connected along parallel lines of fold, the sum of the widths of the auxiliary vertical partition panels substantially equalling the width of said vertical partition panel, a flange structure connected to the ends of said horizontal partition panels and the ends of the adjoining auxiliary vertical partition panels, the portions of the flange structure connected to the horizontal partition panels being connected to the portions of the flange structure connected to the auxiliary vertical partition panels along diagonal fold lines which are at substantially forty-five degrees from the line of fold connecting the auxiliary vertical partition panels to their flange portions, whereby when said flange portions are folded in right angular relation to the panels to which they are hinged, said vertical partition panels are held at right angles to said horizontal partition panels.
2. The structure of claim 1 and including supporting panels hingedly connected to the edges of said horizontal panels opposite the edges hinged to said auxiliary vertical partition panels, said supporting panels being substantially equal in width to the width of one of said auxiliary panels.
3. The structure of claim 1 and including means for securing said auxiliary vertical partition panels to opposite surfaces of said vertical partition panel.
4. The structure of claim 1 and including a rectangular container enclosing said partition structure and holding said flange structures folded.
5. A container having side and end walls and top and bottom walls and including an inner partition structure, the partition structure including, a first supporting panel extending upwardly along one container end wall, a horizontal partition panel generally parallel to said top and bottom container walls, a first auxiliary vertical partition panel extending upwardly from said horizontal partition panel parallel to, and intermediate, the container end walls, a vertical partition panel extending from top to bottom of said container in face contact with one surface of said first auxiliary panel, a second auxiliary vertical partition panel hinged to the lower edge of said vertical partition panel and extending upwardly in face contact with the other surface thereof, a second horizontal panel connected to the upper edge of said second auxiliary panel and extending to the other container end wall, a second supporting panel extending downwardly along said other end wall to the lower edge thereof, a first flange structure connected to the ends of said first horizontal panel and said first auxiliary panel and including portions connected to each said panel and connected along a diagonal fold line at a forty-five degree angle to the edge of said first auxiliary panel, the portion of said flange structure connected to said first horizontal panel extending upwardly therefrom along said container side walls, the portions of said flange structure connected to said first auxiliary panels extending parallel to, and inwardly of, said container side walls and extending

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in a direction toward said other container end wall,
 a similar flange structure connected to the ends of said
 second horizontal partition panel and including por-
 tions connected to said second horizontal partition
 panel and extending downwardly therefrom inwardly 5
 of said side walls,

said last named flange structure also including flange
 portions connected to said second auxiliary panel
 and connected to said downwardly turned flange por-
 tions along diagonal lines of fold at a forty-five de- 10
 gree angle to the line of fold connecting said flange
 structure to said second auxiliary panel,

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said flange portions connected to said second auxiliary
 panel extending parallel to said container side walls
 and toward said one container end wall.

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