

April 15, 1952

F. D. BERGSTEIN

2,593,092

PARTITION STRUCTURE AND METHOD OF MAKING IT

Filed May 12, 1948

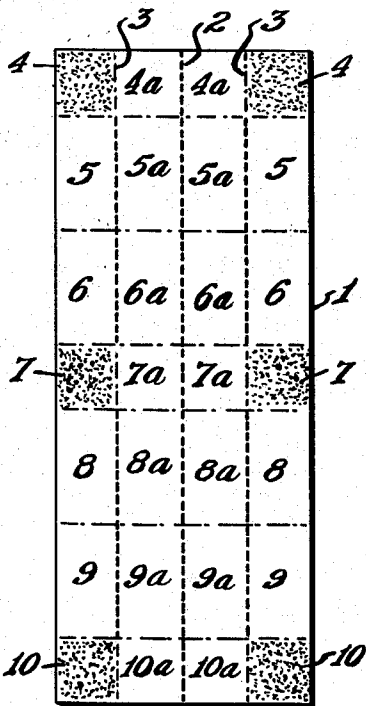


FIG. 1.

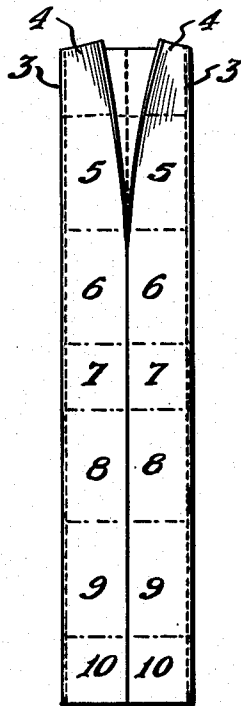


FIG. 2.

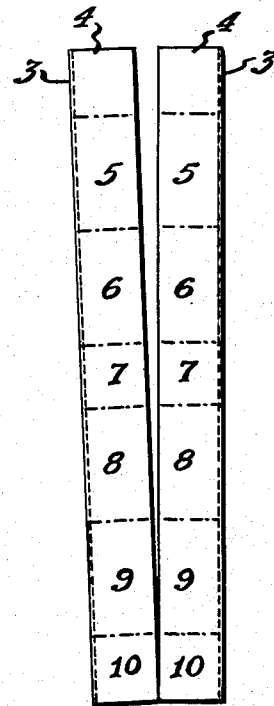


FIG. 3.

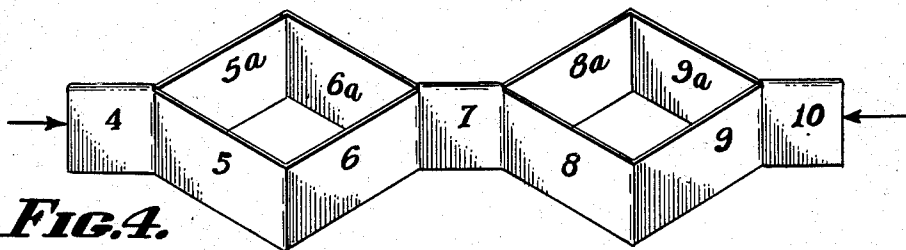


FIG. 4.

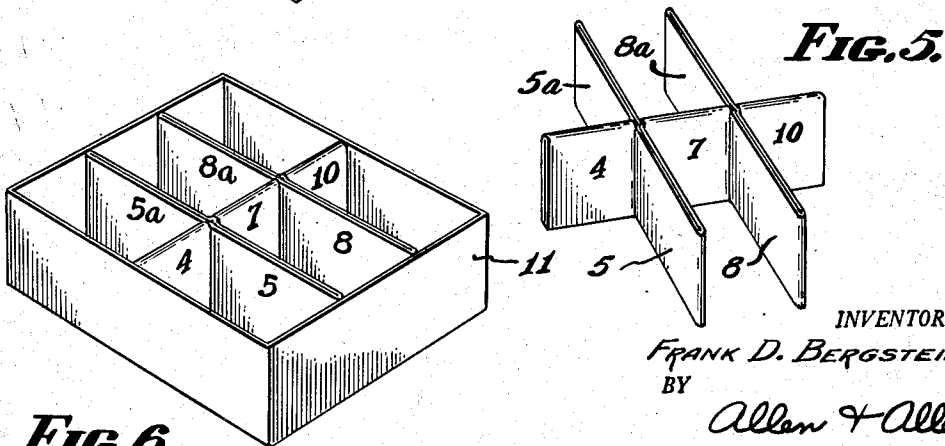


FIG. 5.

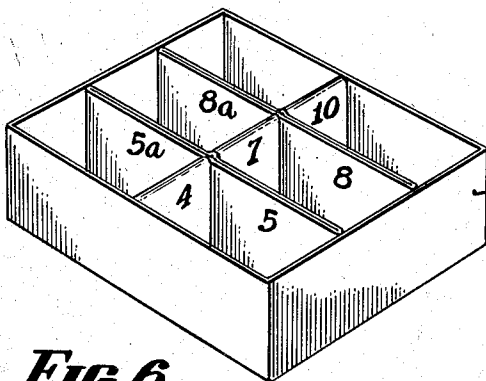


FIG. 6.

INVENTOR.
FRANK D. BERGSTEIN.
BY

Allen & Allen
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,593,092

PARTITION STRUCTURE AND METHOD OF MAKING IT

Frank D. Bergstein, Wyoming, Ohio

Application May 12, 1948, Serial No. 26,635

1 Claim. (Cl. 229-42)

1

My invention relates to the problem of providing divider or partition structures for cartons or containers where the purpose is to keep articles separated therein or to provide cushioning between articles.

The principal object of my invention is the provision of a partition structure which is easily and cheaply manufactured of paperboard, and which can be manufactured of paperboard by employing only the conventional cutting and scoring presses and conventional carton folding and gluing equipment having timed moving means for the blanks and a timed glue printing mechanism.

It is an object of the invention to provide a partition structure having various forms including a form having main and cross ribs, which may be made as a unitary article, and which may be shipped and stored in knock-down form, and easily erected for use.

It is an object of my invention to provide a partition structure the size and shape of which may be widely varied without variation in the essential mode of manufacture, and a partition or divider structure which may be made to provide as many cells as desired in the container with which it is to be used.

It is an object of my invention to provide a divider or partition structure in which the ribs are all of double thickness and hence are not only strong, but are capable of providing a cushioning effect for fragile articles which cannot be attained with a single thickness of material.

It is an object of my invention to provide a divider or partition structure which when erected is characterized by great rigidity as compared with those structures in which main and cross ribs are interengaged by means of notches.

These and other objects of my invention which will be set forth hereinafter or will be apparent to one skilled in the art upon reading these specifications, I accomplish by that procedure and in that structure and arrangement of parts of which I shall now describe an exemplary embodiment. Reference is made to the accompanying drawings wherein:

Figure 1 is a plan view of a blank for a pair of my partition structures.

Figure 2 is a plan view of the blank of Figure 1 as it is being folded and glued.

Figure 3 is a plan view illustrative of the step of separating the structure of Figure 2 into two complete partition forming elements.

Figure 4 is a perspective view showing the par-

2

tion element in process of being erected and indicating the manner in which this is done.

Figure 5 is a perspective view of the completely erected partition structure.

Figure 6 is a perspective view of a carton containing an exemplary form of my partition structure.

Briefly in the practice of my invention I provide a partition element which is in the form of an elongated piece of paperboard folded over on itself. Portions of this folded element are adhered together to form spaced parts of a longitudinal or main rib, while other portions are left free of attachment to each other, and are either separated or separable along the folded edge of the structure. The structure is characterized by transverse score lines or fold lines upon which the parts will bend with respect to each other. In setting up a partition element of this kind it is only necessary to move the ends toward each other, whereupon the free portions of the structure will fold outwardly to provide cross ribs, as will hereinafter be explained.

My partition elements are made in the form of paperboard blanks on the ordinary cutting and scoring press in which, dependent upon the size of the partition structures, the blanks will normally be made in multiples, as will be understood by the skilled in the art. The essentials of the blanks will be seen from Figure 1. Here the blank 1 is divided longitudinally by a line for severance, 2. This line may be in the form of perforations, or spaced slits, as formed by a suitable perforating rule. Each blank such as that illustrated in Figure 1 is intended for two of the divided or partition structures which will later be severed from each other along the line for severance 2.

In the several figures dash lines indicate lines for severance, dot-dash lines indicate scores or fold lines, and solid lines indicate lines of cut. All of these lines may be formed on the cutting and scoring press by the use of appropriate rules in a manner well understood.

The two longitudinal portions into which the blank of Figure 1 is divided by the line 2, are themselves divided by medial longitudinal lines indicated at 3. I also provide transverse score lines dividing the blank into a plurality of panels. At the top of the blank I have shown a panel 4 and a corresponding panel 4a which, in the final structure will be glued together to form part of the central or longitudinal rib. Next these panels I provide panels 5 and 6 articulated together and corresponding panels 5a and 6a.

3

The line between panels 5 and 6 as one pair and 5a and 6a as another pair may be a cut line, but preferably, as shown in the drawing, it is a line for severance to make the blank easier to fold. Next I provide panels 7 and 7a which again are to be adhesively secured together to form a part of the longitudinal rib. These are followed by articulated panels 8 and 9 and corresponding panels 8a and 9a, again separated from each other by a cut line or line for severance as shown. At the lower end of the blank I have shown panels 10 and 10a which will be adhered together to form part of the longitudinal rib.

The panels into which the other half of the blank 1 (lying to the opposite side of the line for severance 2) is divided will be similar. The dimensions and form of the various panels can be widely varied. The width of the several panels will determine the depth of the erected partition or divider structure. The length of the panels 4, 7 and 10 will determine one dimension of the cells produced inasmuch as they determine the spacing of the cross rib portions of the divider. The lengths of panels 5, 6, 8, 9 and their corresponding panels will all be equal when they are to be used for cross ribs, and will determine the length of the cross rib elements and hence the other horizontal dimension of the cells produced. The elements shown in Figure 1 are useful for the formation of divider members with two cross ribs each. It will be understood in the light of these teachings that the parts may be multiplied to form divider elements with any desired number of cross ribs, and that the panels may be dimensioned in such a way as to divide a given box or container in any desired even number of cells.

The object of making the divider elements in duplicate as part of a single blank is not alone that of the achievement of economy in this way; it provides a structure which is easily folded and glued on standard carton folding and gluing equipment.

In folding and gluing the blank of Figure 1, it will be folded along the lines 3-3, i. e., each outside longitudinal portion of the blank will be folded over inwardly. As a part of this operation it is desired to adhere together the panels 4 and 4a, the panels 7 and 7a, the panels 10 and 10a and their several counterparts in the right half of the blank of Figure 1. To accomplish this, in the gluing operation, the blank is acted upon by a spot gluer or glue printing mechanism which will, for example, apply adhesive as shown in dotted lines to panels 4, 7 and 10 and their counterparts at the right hand side of the blank. Actually the gluing operation is not necessary to the operativeness of my partition structures since they are fully operative and easily erected without it. There is, however, advantage in forming the glued structure, in that the partition elements remain flatly in folded form and hence are more easily handled, stacked and packaged. The gluing strengthens the structures and makes them somewhat more easy to erect. Other means of fastening the panels together may of course be adapted if desired, such as the use of staples.

The folded and glued structure is shown in Figure 2, one end of the blank being illustrated in process of folding. The folded double partition structures in the form shown in Figure 2 may be shipped to the box user leaving to him the separation of the two partition elements from

4

each other along the line for severance 2. Or the two elements may be separated as illustrated in Figure 3 before being shipped to the user.

Figure 4 is illustrative of a mode of setting up the partition structure. Inward pressure exerted on the two end elements in the direction of the arrows, as on the doubled longitudinal rib portions 4 and 10 will result in a separation and reverse folding of the pairs of panels 5, 5a, 6, 6a, 8, 8a and 9, 9a as illustrated.

My divider may be used in the partially opened form shown in Figure 4 where it provides a suitable and decorative divider for candy boxes and the like. The shape of the cells can be varied by varying the longitudinal dimensions of the foldable panels.

Another form of the completed, erected partition element is shown in Figure 5. In this figure the doubled panel elements 4, 7 and 10 have come into juxtaposition and alignment to form the longitudinal rib, panels 5 and 6 are juxtaposed on one side of the longitudinal rib while 5a and 6a are juxtaposed on the opposite side. Similarly panels 8 and 9 have folded together on one side and panels 8a and 9a have folded together on the other. The panels 5 to 9 inclusive and their counterparts in the structure form the cross ribs illustrated. If desired the scores between the end-wise articulated panels can be weakened by partial cuts to facilitate the folding.

Figure 6 shows this structure placed in a box 11, where it has the effect of dividing the box up into cells of a size and number depending upon the dimensions and configuration of the partition element as will be understood. As has already been set forth, my partition elements may be so constructed as to divide a box in the direction of its length into any desired number of pairs of cells. This provides two cells in the direction of the width of the box. If more than this number of cells is desired in the direction of width, it is possible and within the scope of my invention to provide two or more sets of my partition elements which can be laid side by side in the box with a single, separate paperboard rib laid there between.

Modifications may be made in my invention without departing from the spirit of it. Having thus described my invention in an exemplary embodiment, what I claim as new and desire to secure by Letters Patent is:

A process of making a divisible pair of partition structures from a single paperboard blank which comprises providing an elongated paperboard blank, cutting and scoring said blank to provide a longitudinal, substantially medial line for severance, and lines of articulation paralleling the first mentioned line and dividing each side of the blank into foldable halves each having an inner and an outer part, and transverse score lines dividing said blank into longitudinal rib forming panels and intermediate, longitudinal pairs of panels foldable with respect to each other at angles to said longitudinal rib forming panels, said lines of articulation constituting fold lines in the areas of said rib forming panels and lines for severance in the areas of said intermediate, longitudinal pairs of panels, folding the outer parts of said halves over said inner parts and adhesively securing together the longitudinal rib forming panels as folded together, whereby to provide a pair of partition structures which may be severed from each other along said medial line for severance

5

and thereafter erected by severing said intermediate, longitudinal pairs of panels from each other along the lines for severance constituting parts of the said lines of articulation dividing each side of the blank into foldable halves and pressing inwardly on the opposite ends of the partition structures so formed pressing inwardly on the opposite ends thereof.

FRANK D. BERGSTEIN. 10

6

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
438,906	Bates -----	Oct. 21, 1890
979,373	Brasseur -----	Dec. 20, 1910
1,345,711	Shapiro -----	July 6, 1920
2,140,001	Davitt -----	Dec. 13, 1938
2,322,647	Hintner -----	June 22, 1943