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T. L. FOLEY

3,260,440

ONE PIECE CELL FORMER

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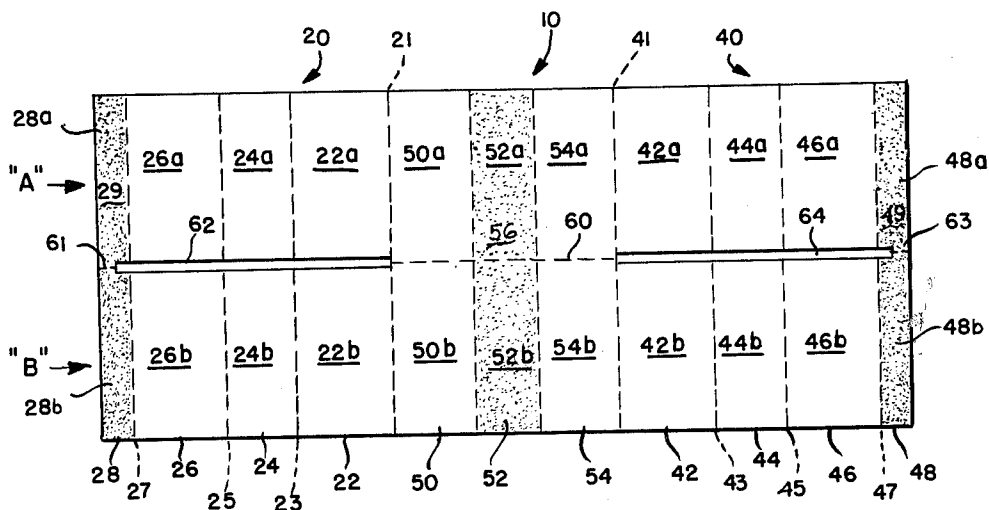


FIG. 1

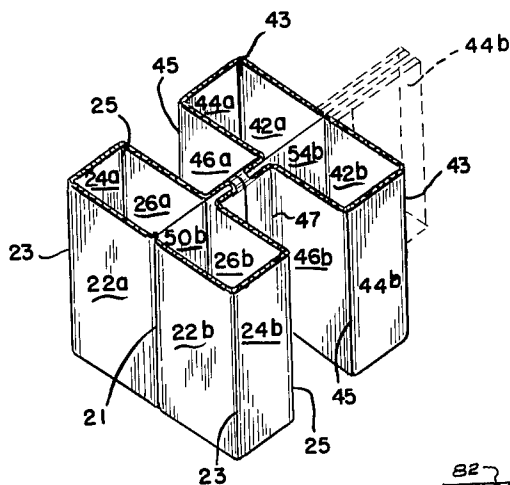


FIG. 3

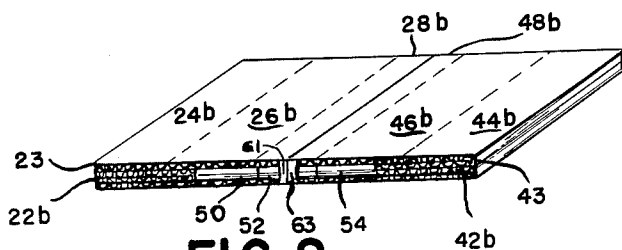
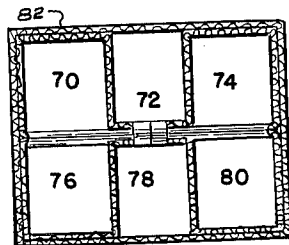


FIG. 2

FIG. 4



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ONE PIECE CELL FORMER

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This invention relates to an improvement in partitions for a carton and particularly to a knock-down type partition which can be made from a single blank of material. Partitions of the type contemplated herein are designed to divide a carton into independent compartments for separating and protecting the articles to be shipped. Since the carton is to be packed at the manufacturing point for the articles, the carton and partition are shipped to the manufacturer in a knock-down or flat condition to save on space and as a consequence cost of shipping. In instances where plastic containers are to be shipped, it has been found that on stacking the cartons the compressive force on the lower carton has resulted in damage to the plastic containers.

One of the primary objects of the present invention is to provide a partition for a carton that occupies a minimum of space in shipping.

Another object of the present invention is to provide an improved partition for a carton that can be erected in a minimum of time.

Another object of the present invention is to provide an improved partition that can be manufactured by automatic machinery.

A further object of the present invention is to provide a partition that requires no assembling or gluing at the shipping point.

A still further object of the present invention is to provide an improved partition which is made from a single blank of material.

A still further object of the present invention is to provide a partition which adds to the compressive strength of the carton in which it is to be used.

These objects are accomplished by scoring a blank of partition forming material transverse to its longitudinal axis to form side walls having equal widths and end walls of equal widths. A longitudinal score is provided along the center line of the blank with sections of the longitudinal score being slotted. This score line divides the end walls and side walls in half and separates the half sections of the side walls from each other and some of the half sections of the end walls from each other. When the blank is folded for shipping, the ends of the blank are folded inward into abutting relation at the center of the blank by an automatic system so that the total area of the blank is reduced in half. A small connection is left at each end of the blank to help align the ends at the center of the blank. A strip of adhesive is provided along the inside surface of the abutting ends of the blank so that it adheres to the center of the blank. The partitions are shipped in this folded condition. The total area of the folded blank will now occupy one-half of its original area thus reducing the space requirement for shipping.

To erect the partition, it is folded along the longitudinal score to a back to back relation and a force is applied to the ends of the folded partition. The sections of the partition which have been separated by the slotted partition of the carton will open outward from the hinged center section. Compartments will then be formed by the transverse relation of the outwardly folded sections and the center section. In the present arrangement, four of the compartments will be completely enclosed and two compartments will be opened at the ends. With the ends of the partition secured to the center of the blank, a rigid

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structure is formed which will retain its shape and at the same time add to the compressive strength of the carton.

Other objects and advantages will become more readily apparent from the following detailed description when read in connection with the accompanying drawings, in which:

FIG. 1 is a view of a flat partition blank.

FIG. 2 is a view of the blank completely folded for shipment.

FIG. 3 is a perspective view of the partition before being placed in a carton.

FIG. 4 is a top view of a partition in a carton.

Referring more particularly to the drawings, the partition blank shown is divided into a central section 10 and identical end sections 20 and 40 by score lines 21 and 41. Each of the identical sections is further divided into a side wall 22 (42), an end wall 24 (44), a side wall 26 (46) and an end wall tab 28 (48) by score lines 23 (43), 25 (45), and 27 (47). The central section is divided into three equal sections 50, 52 and 54 with an adhesive 56 covering the entire surface of section 52. The end wall tabs 28, 48 are coated with an adhesive 29, 49 for adhesion to the adhesive on section 52 when the end sections are folded on score lines 23, 43 back onto the surface of the center section.

The side walls 22, 26, 42 and 46 are of equal widths and the end walls 24, 44 are of the same width as the equal sections 50, 52 and 54. The end wall tabs 28, 48 have a width equal to one-half of the width of section 52. When the end sections are folded on score lines 23, 43 the edge of tabs 28 and 48 will abut at the center line of section 52. With the adhesive applied to center section 52 and tabs 28, 48 the tabs will adhere to section 52 of the center section.

A longitudinal score line 60, 61, 63 is provided along the center line of the blank with portions 62 and 64 of the score line cut or slotted to separate part of the half sections. The blank is divided into an A side and a B side by this score line with side walls 22a, 26a, 42a, 46a and end walls 24b and 44b. The equal sections 50b, 52b and 54b will be hingedly connected to sections 50a, 52a and 54a by score line 60. Tabs 28a, 48a are hinged to tabs 28b, 48b along score lines 61, 63 respectively. This hinged portion is important in fabricating these partitions in automatic machinery since it holds each end of the carton together during the folding operation. An exact alignment is thereby assured in fabricating the partition. The partition is normally shipped in the folded condition and therefore occupies only one-half of its total area resulting in considerable saving in the cost of shipping and handling.

The partition is erected by folding the A side to a back to back relation with the B side. The folded partition is opened by pushing in on score lines 23 and 43 at each end of the folded blank. The side walls 22a, 22b and 42a, 42b will open outward on score lines 21 and 41 respectively. Simultaneously, side walls 26a, 26b and 46a, 46b will bend outward on score lines 27 and 47, respectively, and end walls 24a, 24b and 44a, 44b will be turned to a right angle relation with respect to the side walls being bent on score lines 23, 25 and 43, 45. A six compartment partition (70, 72, 74, 76, 78 and 80) will then be formed when the partition is placed in a carton 82 as shown in FIG. 4.

This partition is designed for use in a carton of known dimensions and can be used to hold one or more articles in each compartment. Since all of the walls of the partition are formed from a single blank of material, the partition will provide a fairly rigid structure when it is placed in the carton. With the end tabs secured to the vertical center section of the blank, the right angle corners

of each partition are maintained and the rigidity of the blank is enhanced considerably as well as simplifying the procedure for erecting the partition. The permanent securing of the end tabs to the center section at the manufacturing point minimizes the operation at the erecting or assembling point since the partition needs only to be inserted in the carton once it has been erected. The retention of the right angle relation of the corners of the partition also adds to the compressive strength of the carton since it doubles the amount of carton stock in each corner as well as placing compression members at four points within the carton. As seen in FIG. 4 these are located at the intersection of the side walls 44-46 and 24-26.

This type of partition is also adaptable to multiple use. That is, the partitions can be placed end to end where the capacity of the carton is to be doubled or tripled. The side walls of the adjacent partitions will be in abutting relation thus affording a support so that the compartments will retain their shape.

Although only one embodiment of the present invention has been shown and described, it should be obvious that various changes and modifications can be made without departing from the scope of the appended claims.

What is claimed is:

1. A divider blank formed of a single piece of material scored to form identical end sections hingedly connected to a central section,

each identical end section being scored to form first, second, third and fourth sections hingedly connected in that order,

said blank being scored and slotted longitudinally to divide said identical sections into half sections with the central section and fourth section hingedly connected together and the first, second and third sections being divided into identical half sections,

whereby on folding said second, third and fourth sections onto said first and central section and folding along said longitudinal score so that the first half sections are in a back to back relation, the partition blank will be one-quarter of its original area, said folded blank being usable as a six compartment partition.

2. A carton divider comprising a vertical partition panel,

first, second, third and fourth vertical side wall panels hingedly connected to said partition panel,

first, second, third and fourth vertical end wall panels hingedly connected to corresponding side wall panels, fifth, sixth, seventh and eighth vertical side wall panels hingedly connected to corresponding end wall panels, and

first, second, third and fourth tab members hingedly connected to respective fifth, sixth, seventh and eighth side wall panels,

said first and fourth tab members being affixed to one side of said partition panel and said second and third tab members being affixed to the other side of said partition panel,

whereby said side walls will be spaced an equal distance apart forming a six compartment partition.

3. A carton divider according to claim 2 wherein said first and second tab members are hingedly connected to each other and said third and fourth tab members are hingedly connected together.

4. A carton partition formed from a single blank of material, said partition comprising a flat rectangular blank of carton forming material,

a transverse strip of adhesive material located intermediate the ends of said blank,

first and second transverse score lines in said blank spaced equal distances from the edges of said adhesive strip,

third and fourth transverse score lines in said blank spaced equal distances respectively from said first and second score lines,

fifth and sixth transverse score lines in said blank spaced equal distances respectively from said third and fourth score lines,

seventh and eighth transverse score lines in said blank spaced equal distances respectively from said fifth and sixth score lines,

the outer edges of said blank being spaced equal distances from said seventh and eighth transverse score lines,

the spaces in the blank between the seventh and eighth score lines and the edge of the blank being covered with an adhesive material,

a first slot along the longitudinal axis of said blank between the first and seventh score lines,

a second slot along the longitudinal axis of said blank between the second and eighth score lines, and

a score line along the remaining portion of the longitudinal axis of said blank,

whereby on folding the ends of the blank along the third and fourth score lines into overlapping relation with the remaining portion of the blank of adhesive material between the seventh and eighth score lines and the edges of the blank will be brought into adhesive engagement with the strip of adhesive material intermediate the ends of said blank,

and on folding the blank along the longitudinal axis the sections of the blank between the first and seventh score lines and the second and eighth scores can be forced to a transverse relation with respect to the center section of the blank.

5. A carton partition according to claim 4 wherein the distance between the adhesive strip and each of the first and second score lines is equal to the distance between the third and fifth score lines and the fourth and sixth score lines.

6. A carton partition according to claim 5 wherein the combined distance between the seventh and eighth score lines and the edge of the blank is equal to the width of the adhesive strip intermediate the ends of the blank.

No references cited.

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R. PESHOCK, *Assistant Examiner*.