

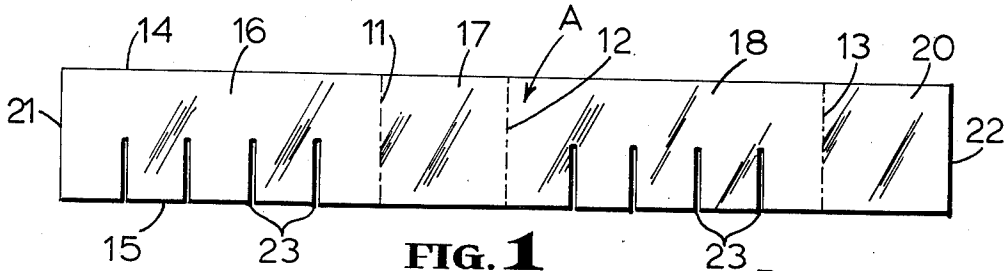
Oct. 23, 1962

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SHIPPING CARTON

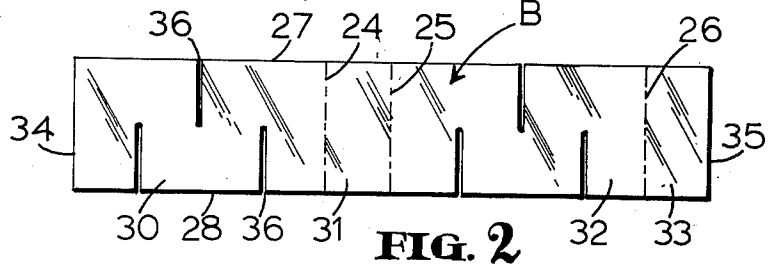
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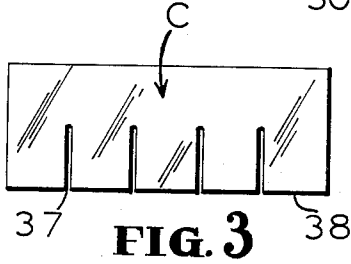
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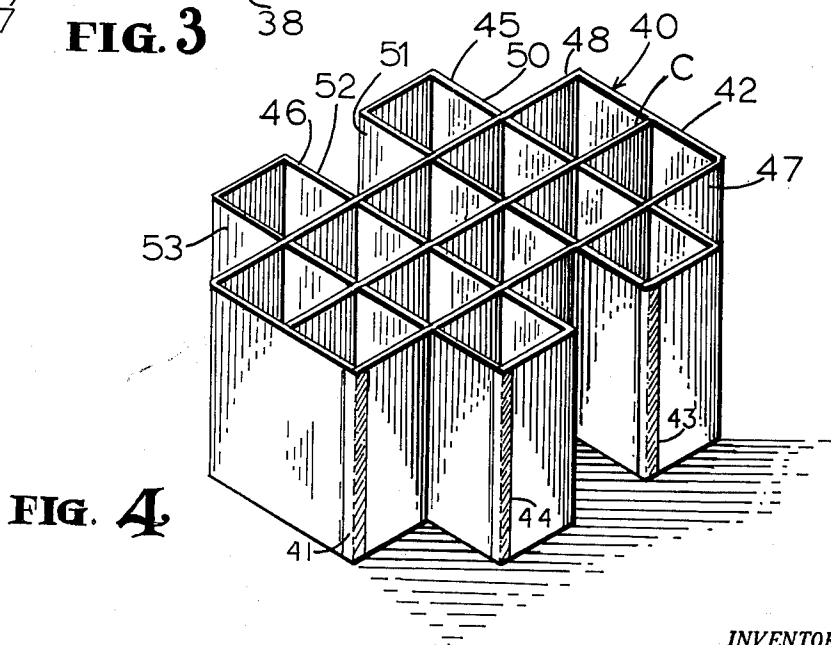
**FIG. 1**



**FIG. 2**



**FIG. 3**



**FIG. 4**

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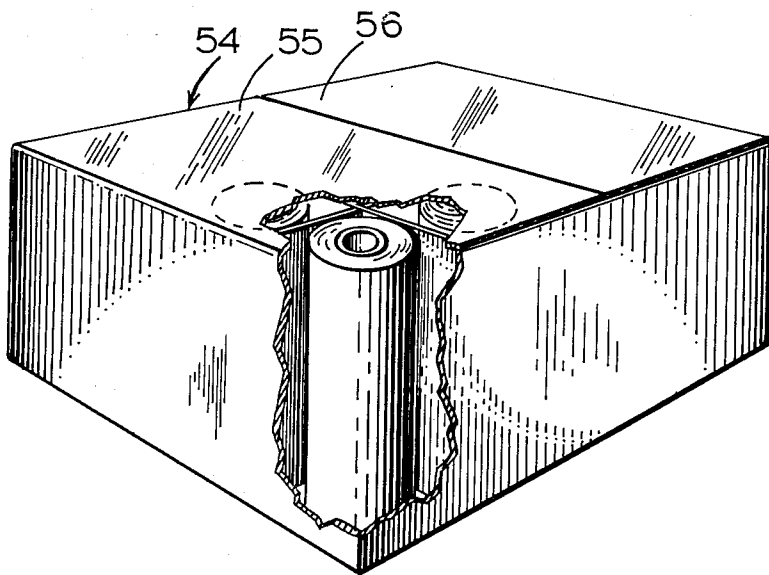


FIG. 5

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SHIPPING CARTON

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 3 Claims. (Cl. 229-15)

This invention relates to a new and useful shipping carton divided into a series of separate compartments. More particularly, the invention relates to a new and useful carton of the aforesaid type especially useful for transporting a tube of wound yarn or the like.

In the storage and shipment of merchandise it is often desirable to place within a single carton a number of articles each maintained in separate compartments. In the textile trade, yarn wound on a tube or the like is sold frequently in case lots, each case containing, for example, twenty packages of yarn. To provide the separate compartments, one may employ a carton having a cell partition made from a series of upright parallel dividers with vertical slots extending downwardly from the upper edges thereof intersecting at right angles a second series of upright parallel dividers which are slotted from the lower edges thereof. However, rough handling, particularly when the yarn packages do not snugly fit within their respective compartments, causes the cell partition to shift from a right parallelogram arrangement to a form of parallelogram having its angles oblique. Obliquity of the cell partition permits the yarn packages in the carton to fall together, thereby disturbing the yarn formation. Cartons heretofore known which have been rigidized to prevent obliquity of the partition during shipment are extremely expensive to manufacture.

Therefore, it is a primary object of this invention to provide a shipping carton inexpensive to construct having a cell partition composed of dividers intersecting along right angles and rigidized to prevent obliquity thereof during shipment.

Another object of this invention is to provide a shipping carton particularly adapted for transporting yarn wound on a tube and provided with a cell partition dividing the carton into a plurality of compartments for accommodating individual yarn packages, the cell partition being constructed such that obliquity thereof during shipment is minimized.

A still further object of this invention is to provide a shipping carton of paperboard construction having a cell partition of a particular arrangement snugly fitted therein so that obliquity of the partition is minimized.

These and other objects of the invention, as well as the novel features thereof, will be set forth more clearly and fully in the following detailed description and claims.

In general the aforesaid objects are accomplished by the provision of a shipping case or carton having a cell partition inserted within it. The cell partition comprises a plurality of rectangularly shaped, interlocked, upright panel elements, each of which has a pair of spaced apart, opposed, upstanding side walls and a pair of spaced apart, opposed, upstanding end walls. Also forming a component part of the cell partition is an upright separator that is centrally disposed and longitudinally extending in one of the panel elements. The side walls of the panel element having the separator within it intersects the side walls of the other panel elements to form substantially right angles therewith. The dimensions of the cell partition are selected with respect to that of the carton such that the end walls of each panel element contact the inner wall surfaces of the carton, thereby rigidizing the cell partition by keeping the walls of the panel elements from shifting to form oblique angles.

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In the drawing, FIGURE 1 is a plan view of a blank from which a panel element of the cell partition can be constructed;

FIGURE 2 is a plan view of a blank from which other panel elements can be constructed;

FIGURE 3 is a side view of a separator showing the construction thereof;

FIGURE 4 is a perspective view of a cell partition showing a manner in which the panel elements and separator may be assembled together; and

FIGURE 5 is a perspective view of the cell partition inserted in a shipping box of conventional construction, yarn wound on a tube being placed in the compartments defined by the partition.

With reference first to FIGURE 1 it is seen that from a unitary blank A a first panel element can be made. The blank A is provided with fold lines 11, 12, and 13 extending vertically between the horizontal edges 14 and 15 thereof. These lines provide for articulation of the blank therealong. Thus, the blank, when folded, is divided into four portions 16, 17, 18 and 20. Portions 16 and 18 have approximately the same dimensions, and portions 17 and 20 likewise have approximately the same dimensions. Hence, the blank is foldable into a quadrilateral enclosure of a rectangular shape. When folded, end edges 21 and 22 of blank A meet and may be securely connected together to maintain the quadrilateral configuration. Portions 16 and 18 form the side walls of the first panel element; and portions 17 and 20 form the end walls of the first panel element. Four vertical parallel slots 23 extend unilaterally from the bottom horizontal edge 15 of each of portions 16 and 18 terminate at a point approximately midway the width thereof. Slots 23 are substantially equi-spaced along the length of portions 16 and 18. It is to be noted that the length of portions 17 and 20 is about two-fifths of the length of portions 16 and 18.

With reference now to FIGURE 2 it is seen that from a unitary blank B other panel elements differing in dimensions from the first panel element can be made to provide quadrilateral enclosures. Blank B is provided with fold lines 24, 25, and 26 extending vertically between the horizontal edges 27 and 28, these lines providing for articulation therealong. Thus, the blank is divided into four portions 30, 31, 32 and 33. Portions 30 and 32 have approximately the same dimensions; and portions 31 and 33 likewise have approximately the same dimensions. Hence, blank B is foldable into a quadrilateral enclosure of a rectangular shape. When thus folded, the end edges 34 and 35 meet and may be securely connected together to maintain the quadrilateral configuration. Portions 30 and 32 form the side walls of the enclosure or panel element and portions 31 and 33 form the end walls thereof. Three vertical parallel slots 36 extend from the horizontal edges of each of portions 30 and 32. The slots 36 extending from edge 28 may be considered as being outboard slots when the blank B is properly folded to form a panel element. The slots 36 extending from edge 27 may be considered as being inboard slots when the blank B is folded to form a panel element. Slots 36 terminate at a point approximately midway the width of the blank and are substantially equi-spaced along the length of portions 30 and 32. It is to be noted that the length of the portions 31 and 33 as measured horizontally is about one-fourth the length of portions 30 and 32 and about one-half the length of portions 17 and 20.

With reference now to FIGURE 3 a unitary blank C is seen that forms the separator referred to above. The blank C has four vertical parallel slots 37 extending unilaterally from a horizontal edge 38 thereof and terminating at a point midway the width thereof. Slots 37 are substantially equi-spaced along the length of blank C.

In FIGURE 4 the cell partition generally denoted by reference numeral 40 is shown in an arrangement with its parts assembled in accordance with the invention. The cell partition is set up by bending upwardly blank A along its lines of fold. The end edges 21 and 22 of blank A are secured together in a suitable manner such as by the use of an adhesive strip 41 to provide a first panel element 42. Next, two blanks B are bent upwardly along their respective lines of fold, with the end edges thereof being secured together with adhesive strips 43 and 44 or the like to provide a second panel element 45 and a third panel element 46. The side walls 47 and 48 of the first panel element 42 perpendicularly intersect the side walls 50, 51, 52, and 53 of the second and third elements and are detachably interlocked therewith by the engagement of the vertical slots of the first panel element with the corresponding outboard slots of the second and third panel elements. The separator or blank C is perpendicularly interlocked by the engagement of its slots with the corresponding inboard slots in the side walls of the second and third panel elements.

The panel elements, of course, are suitably dimensioned to provide a substantially snug fit within a box 54 having closure flaps 55 and 56 as seen in FIGURE 5 so that the end walls of each panel element contacts the inner wall surface of the box, thereby rigidizing the cell partition to prevent same from becoming oblique. The cell partition divides the box into twenty distinct compartments of square cross section into which twenty packages of yarn wound on a holder may be inserted for shipment thereof. It is obvious that by changing the dimensions of the blank and the spacings of the fold lines and slots, the proportions of the compartments can be changed as desired. The box and cell partition are preferably made of paperboard or the like since such material provides the most economical construction.

The shipping carton of the present invention has numerous advantages. The carton can be economically manufactured. The cell partition has considerable resistance against becoming oblique even during rough handling of the carton, this resistance being obtained with a minimal amount of paperboard required in the construction thereof. In addition this invention affords a convenient package for yarn wound on a bobbin or other similar products.

It is to be understood that the embodiments herein described are not restrictive and it is to be understood also that the invention may be susceptible of embodiments in other forms and that all such modifications which are similar or equivalent thereto come equally within the scope of the following claims.

What is claimed is:

1. A carton particularly adapted for shipping wound yarn having a cell partition dividing the carton into a plurality of elongated compartments having open ends and a substantially square transverse cross section, the cell partition consisting of a first rectangular panel element having a pair of opposed upstanding end walls and having a pair of opposed upstanding side walls provided with vertical slots, a single plate separator centrally disposed within and entirely surrounded by said first panel element and extending substantially perpendicularly between the end walls thereof, and a second and a third rectangular panel element each having a pair of opposed upstanding end walls and having a pair of opposed upstanding side walls provided with vertical slots, the side walls of the first panel elements and the separator perpendicularly intersecting the side walls of the second and third panel elements and interlocked therewith by the engagement of the vertical slots therein, the end walls of each panel element contacting the inner wall surface of said carton, thereby rigidizing the cell partition to prevent obliquity thereof.

2. A carton particularly adapted for shipping wound yarn having a cell partition dividing the carton into twenty

elongated compartments having open ends and a substantially square transverse cross section, the cell partition consisting of a first rectangular panel element having a pair of opposed upstanding side walls each provided with four substantially equispaced vertical slots extending from one edge thereof and terminating at approximately midway the width thereof and having a pair of opposed upstanding end walls, a single plate separator extending substantially perpendicularly between the end walls thereof and centrally disposed within and entirely surrounded by the enclosure defined by the first panel element thereby bisecting the said enclosure into two sections each having a width of about one-fifth of the length of the side walls of the first panel element, said separator being provided with four substantially equispaced vertical slots extending unilaterally from one edge thereof and terminating at approximately midway of the width thereof, and a second and a third rectangular panel elements each having a pair of opposed upstanding side walls spaced apart about one-half the distance that the side walls of said first panel are spaced apart and a pair of opposed upstanding end walls spaced apart about four-fifths the distance that the end walls of said first panel are spaced apart, each of the side walls of the second and third panel elements being provided with three substantially equi-spaced vertical slots extending from the edges thereof and terminating at approximately midway the width thereof, the side walls of the first panel element and the separator perpendicularly intersecting the side walls of the second third panel elements and detachably interlocked therewith by the engagement of the vertical slots of the second and third panel elements, the end walls of each panel element contacting the inner wall surface of said carton, thereby rigidizing the cell partition to prevent obliquity thereof.

3. A carton particularly adapted for shipping wound yarn having a cell partition dividing the carton into twenty elongated compartments having open ends and a substantially square transverse cross section, the cell partition consisting of a first rectangular panel element having a pair of opposed upstanding side walls each provided with four vertical slots extending unilaterally from one horizontal edge thereof and terminating at approximately midway the width thereof and having a pair of opposed upstanding end walls, the vertical slots in said first panel element being substantially equi-spaced along the length of the side walls, an upright single plate separator extending substantially perpendicularly between the end walls thereof and centrally disposed within and entirely surrounded by the enclosure defined by the first panel element thereby bisecting the said enclosure into two sections each having a width of about one-fifth the length of the side walls of the first panel element, said separator being provided with four vertical slots extending unilaterally from the horizontal edge thereof opposite to the edge from which the slots in the first panel element extend and terminating at approximately midway the width thereof, the vertical slots in the said separator being substantially equi-spaced along the length of the separator, and a second and a third rectangular panel element each having a pair of opposed upstanding side walls spaced apart about one-half the distance that the side walls of said first panel are spaced apart and a pair of opposed upstanding end walls spaced apart about four-fifths the distance that the end walls of said first panel are spaced apart, each of the side walls of the second and third panel elements being provided with three vertical slots substantially equi-spaced along the length thereof, the inboard slot interposed between the two outboard slots of each side wall of said second and third panel elements extending from the horizontal edge opposite to the horizontal edge from which the two outboard slots extend with the three slots of the second and third panel elements terminating at approximately midway the width thereof, the side walls of the first panel element perpendicularly intersecting the

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side walls of the second and third panel elements and detachably interlocked therewith by the engagement of the vertical slots of the first panel element with the corresponding outboard slots of the second and third panel elements, the separator perpendicularly intersecting the side walls of the second and third panel elements and detachably interlocked therewith by the engagement of the slots of the separator with the corresponding inboard slots of the second and third panel elements, the end walls of each panel element contacting the inner wall surface of

said carton, thereby rigidizing the cell partition to prevent obliquity thereof.

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