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(54) **BOX WITH CARRY HANDLES TO  
FACILITATE CARRYING THE BOX**

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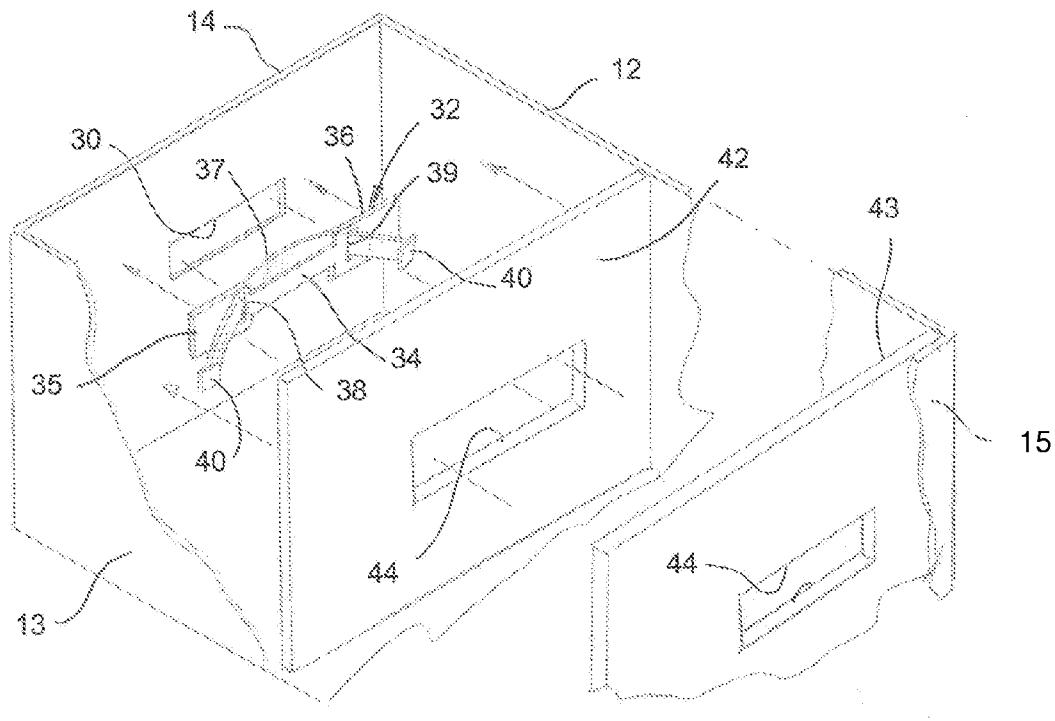
**ABSTRACT**

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A carton for cut sheets of paper has a bottom wall, opposite side walls, and opposite end walls. An opening is in each of the opposite end walls and a carry handle is secured to an inner surface of each end wall in aligned registry with a respective opening. The carry handles have a stowed position inside the carton and an extended position outside the carton for lifting and carrying the carton. A spacer panel in said carton has cutouts in aligned registry with respective carry handles to accommodate the carry handles when in their stowed position and prevent contact between the carry handles and paper in the carton.

**Related U.S. Application Data**

(60) Provisional application No. 61/893,538, filed on Oct. 21, 2013.



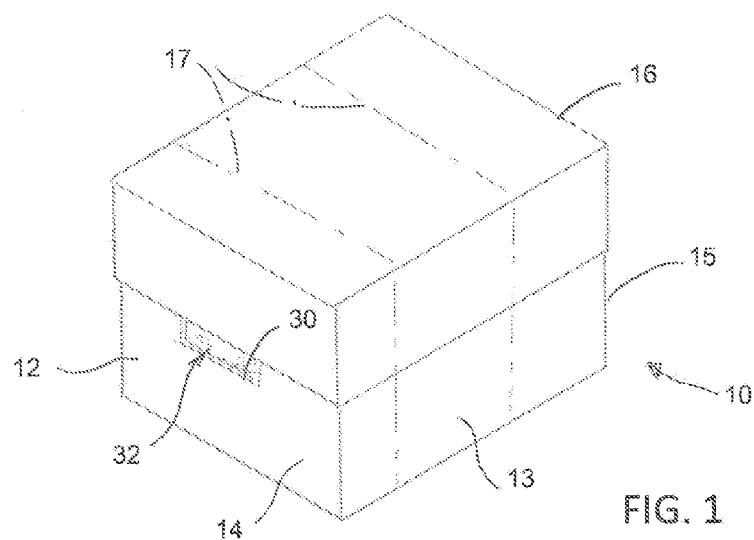


FIG. 1

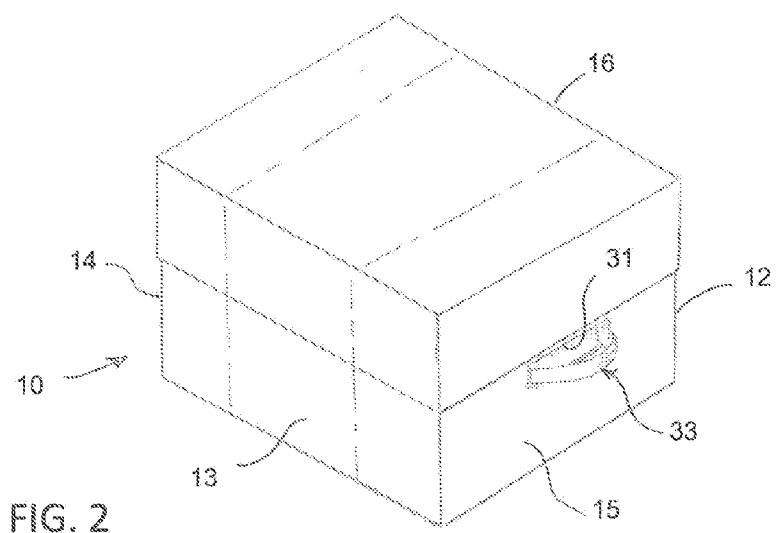


FIG. 2

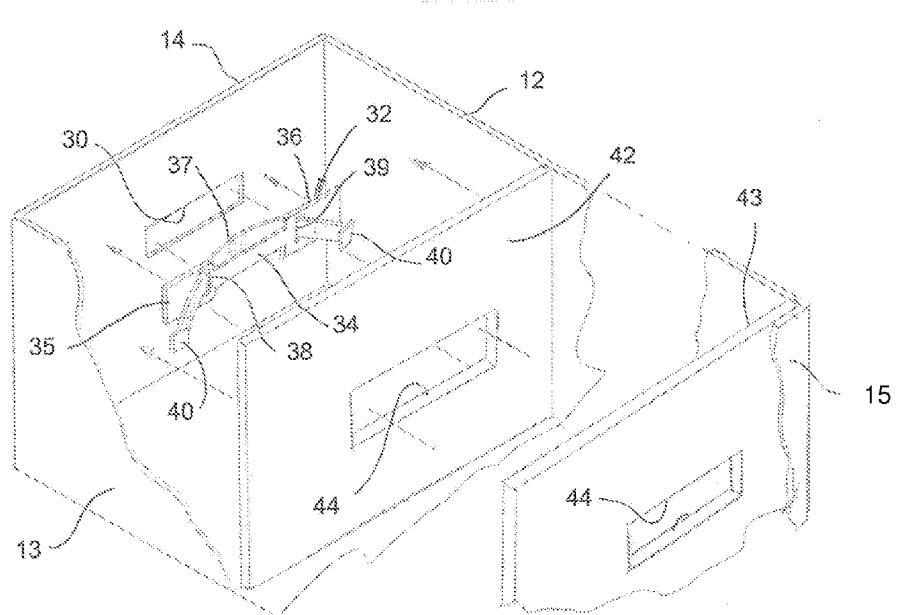


FIG. 3

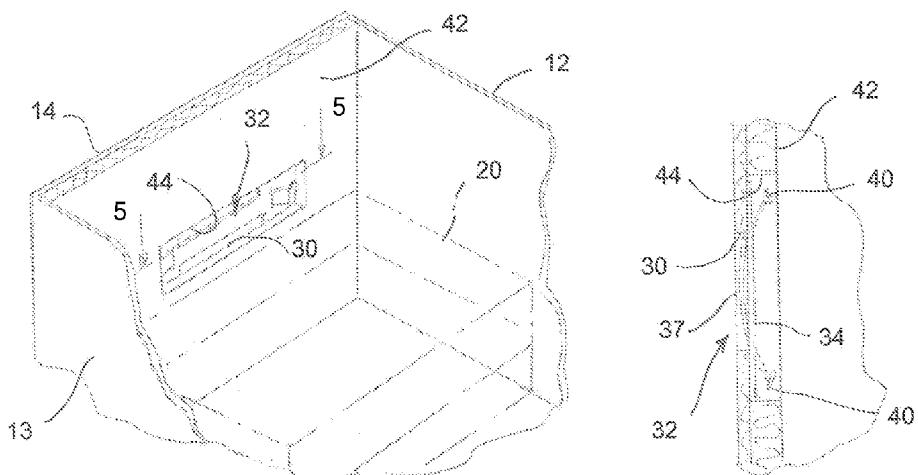


FIG. 4

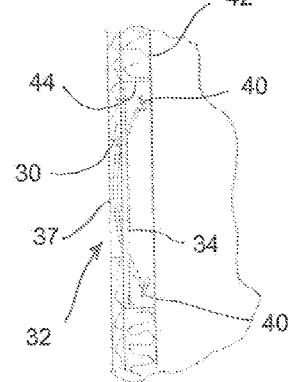


FIG. 5

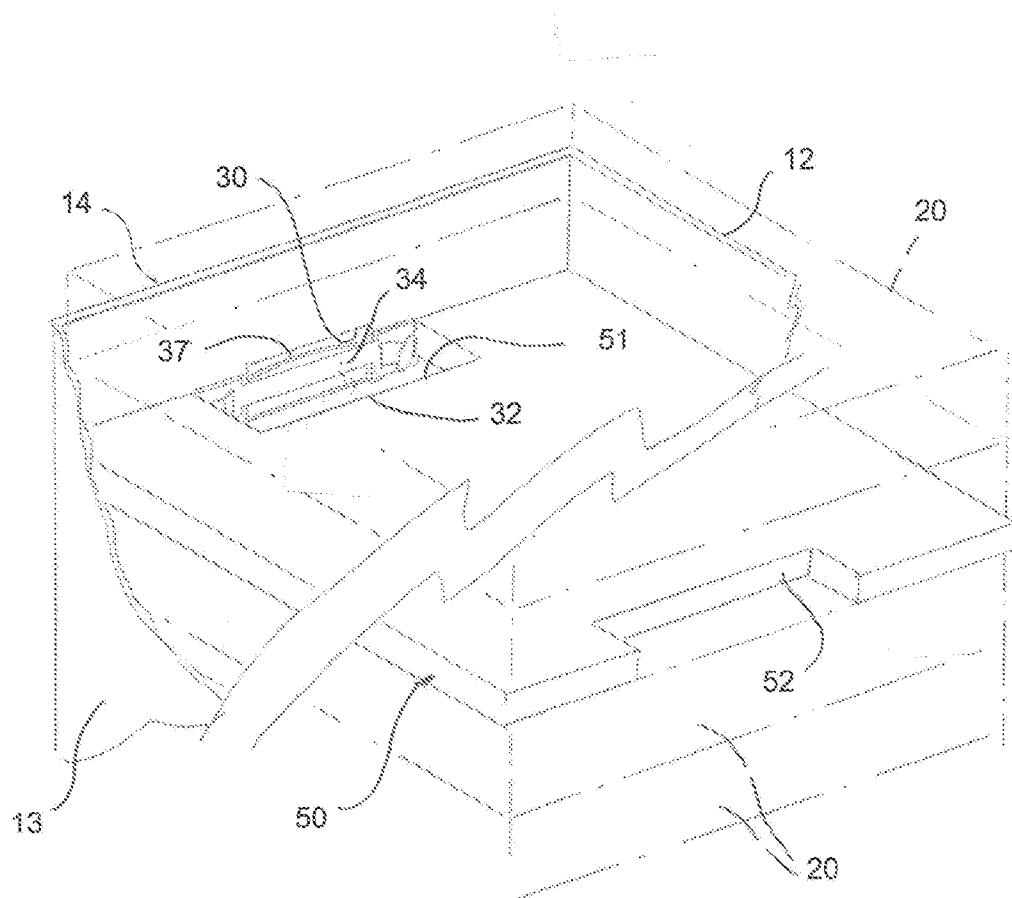


FIG. 6

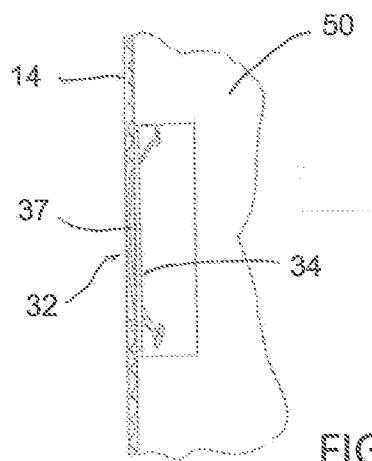


FIG. 7

**BOX WITH CARRY HANDLES TO  
FACILITATE CARRYING THE BOX****FIELD OF THE INVENTION**

**[0001]** This invention relates generally to boxes. In particular, the invention relates to a box having carry handles that are stowable inside the box when not in use and, when in use, at a position outside the box to facilitate lifting and carrying the box. In a specific embodiment the box is a carton designed to hold multiple reams of cut sheets of paper, and spacer panels in the box provide room for stowing the handles inside the box when not in use so that the handles do not damage the paper.

**BACKGROUND ART**

**[0002]** Conventional boxes and cartons are normally picked up and carried by placing the hands under the bottom of the box or carton, or sometimes by grasping straps wrapped around the box when straps are present. Conventional cartons designed for holding cut sheets of paper are formed of corrugated cardboard and typically hold 5 or 10 wrapped reams of 500 sheets each. These cartons of paper weigh 50 pounds or more, depending upon the bond rating of the paper and the number of reams in the carton. For example, a single ream of standard 20 lb. bond paper weighs 5 pounds and a single ream of 24 lb. bond paper weighs 6 pounds, whereby a carton of 10 reams of 20 lb. bond paper weighs 50 pounds and a carton of 10 reams of 24 lb. bond paper weighs 60 pounds. These boxes are relatively heavy and difficult to handle by most consumers.

**[0003]** Some conventional boxes and cartons have hand holes in opposed walls to facilitate lifting and carrying of them, but there is no space behind the hand holes to provide access for insertion of the fingers through the hand holes. Cartons holding reams of cut sheets of paper normally do not have hand holes in them since the reams fit closely in the box and there would not be room to insert the fingers through the hand holes.

**[0004]** Consumers wishing to purchase one or more cartons of paper typically either order the paper to be delivered to their home or office location, or go to a point of sale to acquire the paper. In the former instance, even after the carton has been delivered to its destination, the consumer generally either has to lift the carton of paper and carry it to its point of use, or lift the carton onto a cart for transport to the point of use and then again lift the carton to remove it from the cart. In the latter instance, when the consumer drives to a point of sale to acquire the paper, the consumer either has to lift and carry the carton to check-out, or select a shopping cart and push the cart to where the cartons of paper are displayed, then lift the carton into the cart and push the cart to check-out. After purchase, the consumer again has to lift the carton of paper to remove it from the cart and place it in his or her vehicle. Upon reaching their destination, the consumer again has to lift the carton to remove it from the vehicle and either carry the carton into his or her home or office or place it on a cart to transport it to its point of use. This multiple lifting of the relatively heavy cartons of paper from a variety of carts, dollies and shopping carts increases the possibility for personal injury to the consumer.

**[0005]** Container handling is the third largest source of injury and illness in the private sector and is the largest source of injury and illness in the retail trade. Boxes of photocopy paper are among the heaviest items that employees are

required to lift in the office. Data indicates that manual material handling (MMH) is among the most frequent and severe causes of injury worldwide, and 35%-40% of workplace injury costs are related to MMH, with 1.8 million U.S. workers experiencing work related musculoskeletal disorders (WMSD's) each year.

**[0006]** Manual handling issues that affect the ease and safety of the lift include: weight of the object; horizontal location of the object; vertical location of the object; vertical travel distance; asymmetry/twisting; frequency; duration; coupling; posture; and if mechanical contact stress is present.

**[0007]** Applicant's prior copending application Ser. No. 13/768,664, filed Feb. 15, 2013, discloses a carton for holding reams of cut sheets of paper, wherein hand holes are provided in the ends of the carton and a spacer panel with recesses in its ends is positioned in the carton with the recesses behind the hand holes to provide room for fingers inserted through the hand holes, thereby facilitating lifting and carrying of the carton. While this does permit the carton to be lifted and carried without having to place the hands beneath the carton, carry handles are not provided and the weight of the carton must be supported by fingers inserted into the hand holes.

**[0008]** It would be advantageous to have a container, especially a box or carton for cut sheets of paper, wherein the carton has carry handles that can be stowed inside the carton when not in use but extended outside the carton so that the fingers can be curled around the handles to facilitate lifting and carrying of the carton and thereby minimize the incidences of injury that occur with conventional containers.

**SUMMARY OF THE INVENTION**

**[0009]** In a preferred embodiment the box of the invention comprises a standard corrugated paper carton having a bottom wall, opposite side walls, opposite end walls, and a removable lid or cover, and is designed to hold multiple reams of cut paper, but it should be understood that the principles of the invention could be applied to containers made of other materials and having other capacities and designed for other goods.

**[0010]** The carton of the invention has openings in opposite walls and carry handles secured to the walls inside the carton in registry with a respective opening so that the carry handles can be stowed inside the carton when not in use and extended through the openings for access outside the carton when desired. To prevent the handles from damaging the contents of the carton when the carry handles are in stowed position, at least one spacer panel is placed in the carton with recessed areas or cutouts in position to receive the stowed handles. In one embodiment a spacer panel is placed vertically in each end of the carton between the reams of paper and a respective wall having a carry handle secured to it, and in another embodiment a single horizontally oriented spacer panel is inserted between the layers of paper so that the recessed areas or cutouts in the panel are aligned with the openings in the walls.

**[0011]** The invention disclosed herein has particular utility in cartons holding cut sheets of paper, but it should be understood that the invention is applicable to cartons holding other objects where there is little or no room between the contents and the carton wall and damage to the contents could occur from a carry handle stowed inside the carton.

**[0012]** In the invention, the fingers and/or hands of the user can wrap around the carry handle, affording a stronger grip than can normally be achieved by lifting with fingers inserted

through an opening. The carry handles provide a secure grip and control of the carton, enabling it to be easily maneuvered and cleanly lifted and carried, thus limiting the risk of product damage and injury to the user due to accidentally dropping the carton. Further, the carry handles allow the carton to be fully placed before releasing it, thus limiting the risk of product damage and injury to the user due to intentional dropping.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The foregoing, as well as other objects and advantages of the invention, will become apparent from the following detailed description when taken in conjunction with the accompanying drawings, wherein like reference characters designate like parts throughout the several views, and wherein:

[0014] FIG. 1 is a top isometric view of a carton having carry handles according to the invention, shown in its shipping configuration with straps applied around the carton and a carry handle in stowed position inside the carton.

[0015] FIG. 2 is a top isometric view of the carton of FIG. 1, taken from the opposite end and showing a carry handle in extended position ready for use.

[0016] FIG. 3 is a fragmentary top isometric exploded view of one end of a carton according to a first embodiment of the invention, showing one of the spacers.

[0017] FIG. 4 is a fragmentary top isometric view of the first embodiment, showing the parts in assembled relationship with a few reams of paper shown in broken lines.

[0018] FIG. 5 is a fragmentary sectional view taken along line 5-5 in FIG. 4.

[0019] FIG. 6 is a fragmentary top isometric exploded view, with portions broken away, of a second embodiment of the invention, and showing reams of paper in broken lines.

[0020] FIG. 7 is a fragmentary plan view of one end of the spacer according to the second embodiment, showing how the spacer provides room for the carry handle.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] Referring more specifically to the drawings, a carton according to the invention is indicated at 10 in FIGS. 1 and 2. The carton has a bottom wall 11, opposite side walls 12 and 13, opposite end walls 14 and 15, and a lid or cover 16 covering the open top of the carton.

[0022] The carton as shown and described herein is intended for containing wrapped reams 20 of cut sheets of paper. Tie straps 17 may be placed longitudinally and/or transversely around the carton to secure it during shipping and storage, as shown in broken lines in FIGS. 1 and 2.

[0023] In accordance with the invention, the carton 10 has openings 30 and 31 cut in its opposite end walls 14 and 15, respectively, and carry handles 32 and 33 are secured to the inside surface of respective end walls in aligned registry with respective openings 30 and 31. The carry handles shown and described herein are the so-called dog-bone type, with an elongate base member 34 having enlarged pads 35 and 36 at its opposite ends, and an elongate strap 37 having opposite ends slidably received through slots 38 and 39 in respective said pads. Enlarged ends 40 on the strap retain the ends of the strap in the slots and prevent separation of the strap from the base. The base and pads can be made larger, if desired or necessary, to provide a stronger construction that is less likely to tear the carton when lifting force is applied to the carry

handles, especially for cartons holding 10 reams of paper. Also, if desired, a separate reinforcing sheet of fiberglass or reinforced paper or the like, not shown, can be adhered between the base of the carry handle and the adjacent carton end wall.

[0024] In use, the fingers are inserted through the respective openings 30 and 31 and the straps 37 are grasped and pulled out through the openings to form a carry handle as shown in FIG. 2 for lifting and carrying the carton. When they are not needed the straps can be pushed back through the respective openings into a stowed position inside the carton.

[0025] In a first embodiment, as shown in FIGS. 3 through 5, vertically extending spacer panels 42 and 43 are inserted in opposite ends of the carton between the reams of paper 20 (see FIG. 4) 3 and a respective adjacent end wall. A cut out 44 is formed in each of the spacer panels 42 and 43 in aligned registry with a respective opening 30 or 31 and in positions to provide spaces for storing the carry handles when they are not in use. In the absence of the spacer panels, and because of the tight fit between the reams of paper and the inside surfaces of the carton walls, the carry handles could cause damage to the reams of paper. The spacer panels maintain a tight fit between the reams of paper and the walls of the carton, but provide space for storage of the carry handles so that the carry handles do not contact the reams of paper.

[0026] In a second embodiment, as shown in FIGS. 6 and 7, a single spacer panel 50 is placed horizontally between the layers of reams of paper on the same level as the openings 30 and 31. Cutouts 51 and 52 in the ends of the spacer panel are in aligned registry with the respective openings 30 and 31 and provide space to accommodate the carry handles 32 and 33 when in their stowed position, thus protecting the reams of paper from damage due to contact with the carry handles.

[0027] The spacer panels 42, 43 and 50 can comprise a sheet of honeycomb material or other material to provide the necessary space for the carry handles. In a preferred embodiment, the panels 42 and 43 each have a thickness of about one-half inch and the panel 50 has a thickness of about one inch. The cut outs 44, 50 and 52 have a width and length adequate to accommodate the carry handle. The spacer panels 32 and 33 have height and width dimensions to fit within the interior height and width dimensions of the carton. They may be adhesively secured to a respective carton end wall or placed loosely in the carton. The spacer panel 50 has length and width dimensions to fit within the length and width dimensions of the carton. In addition to their primary purpose, described above, the spacer panels can serve to reinforce the carton to reduce damage when the carton is dropped.

[0028] Further, in drop tests conducted on similar cartons with a horizontal spacer panel, the severity of tear was substantially reduced when either a  $\frac{3}{4}$  inch spacer panel or a 1 inch spacer panel was placed in the carton according to the invention. When a 1 inch thick spacer panel was placed in the carton according to the invention the average number of reams torn was substantially reduced in both the six drop series and the seven drop series, and the severity of tear was reduced in the six drop series.

[0029] While particular embodiments of the invention have been illustrated and described in detail herein, it should be understood that various changes and modifications may be made in the invention without departing from the spirit and intent of the invention as defined by the appended claims.

What is claimed is:

1. A carton for cut sheets of paper, wherein said carton comprises:
  - a bottom wall, opposite side walls, and opposite end walls; an opening in each of the opposite end walls;
  - a carry handle secured to an inner surface of each end wall in aligned registry with a respective opening, said carry handles having a stowed position inside the carton and an extended position outside the carton for lifting and carrying the carton; and
  - a spacer panel in said carton, said spacer panel having cutouts in aligned registry with respective carry handles to accommodate the carry handles when in their stowed position and prevent contact between the carry handles and paper in the carton.
2. A carton as claimed in claim 1, wherein:  
said spacer panel is disposed horizontally within said carton between layers of paper and has width and length dimensions to fit closely within the width and length dimensions of the interior of the carton.
3. A carton as claimed in claim 2, wherein:  
said cut outs are rectangularly shaped and are formed in opposite ends of the spacer panel.
4. A carton as claimed in claim 1, wherein:  
a said spacer panel is vertically positioned in each end of the carton against a respective adjacent said end wall and has height and width dimensions to fit closely within the height and width dimensions of the interior of the carton.
5. A carton as claimed in claim 4, wherein:  
said spacer panels are secured to an inner surface of a respective said carton end wall.
6. A carton as claimed in claim 4, wherein:  
said spacer panels are loosely received in said carton.
7. A carton as claimed in claim 3, wherein:  
said carry handles each comprise an elongate base member having enlarged pads on its opposite ends, said base member secured to an inner surface of a respective said end wall, and an elongate strap having opposite ends slidably received through slots in the pads, enlargements on said strap opposite ends preventing complete separation of the strap from the base member but permitting it to be withdrawn through a said opening for access exteriorly of the carton.
8. A carton as claimed in claim 5, wherein:  
said carry handles each comprise an elongate base member having enlarged pads on its opposite ends, said base member secured to an inner surface of a respective said end wall, and an elongate strap having opposite ends slidably received through slots in the pads, enlargements on said strap opposite ends preventing complete separation of the strap from the base member.

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