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3,489,274

END SUSPENSION CONTAINER

Filed May 1, 1968

3 Sheets-Sheet 1

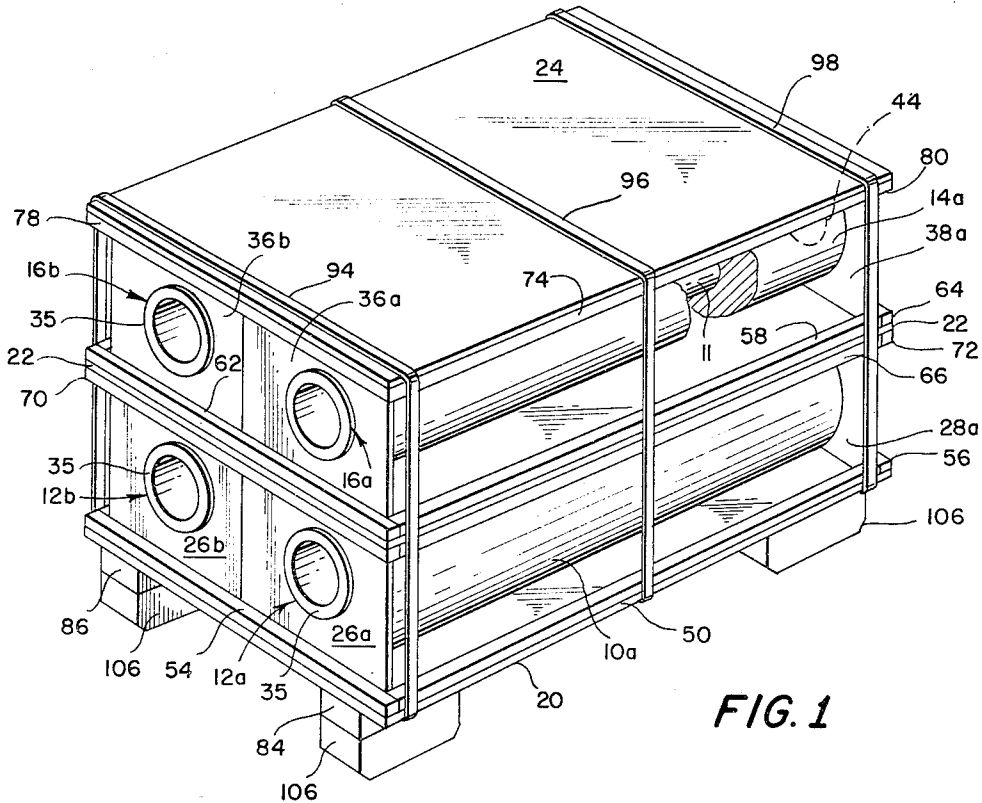


FIG. 1

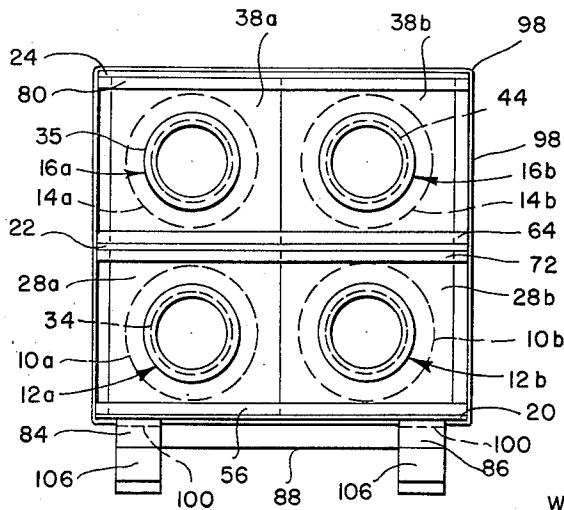


FIG. 3

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3 Sheets-Sheet 2

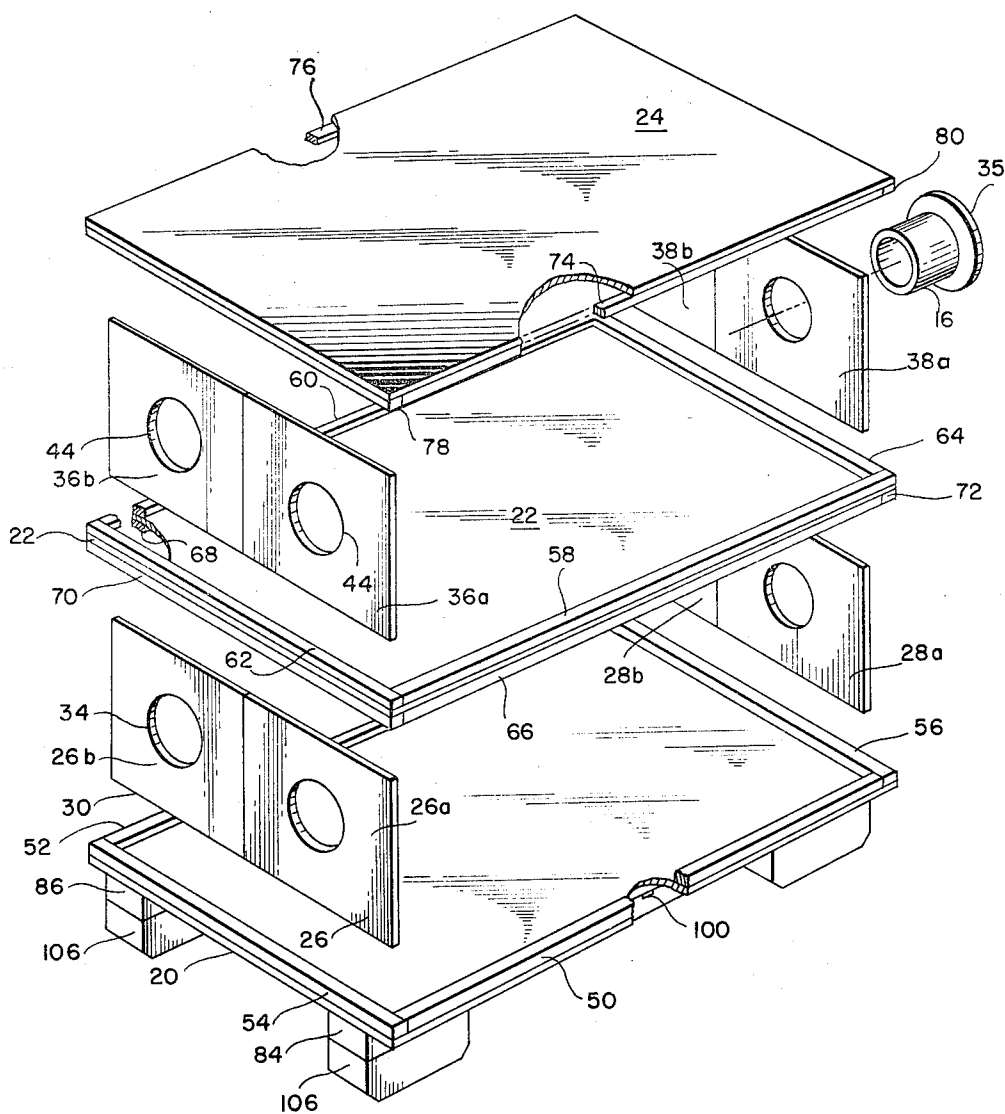


FIG. 2

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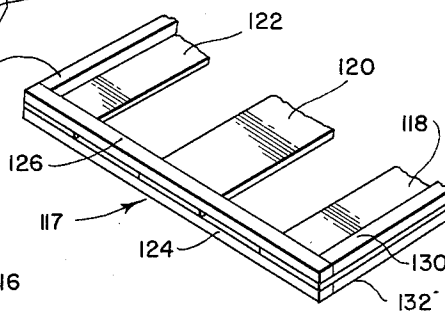
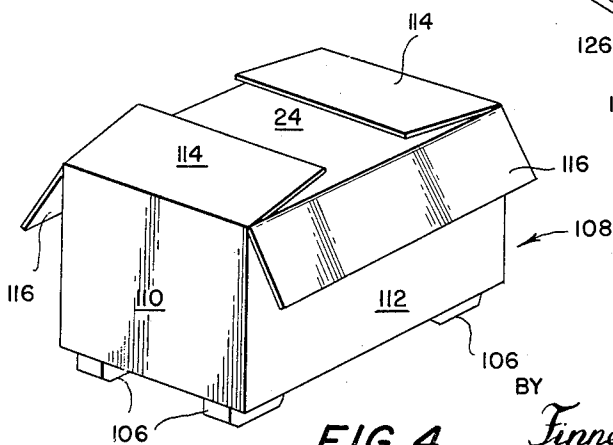
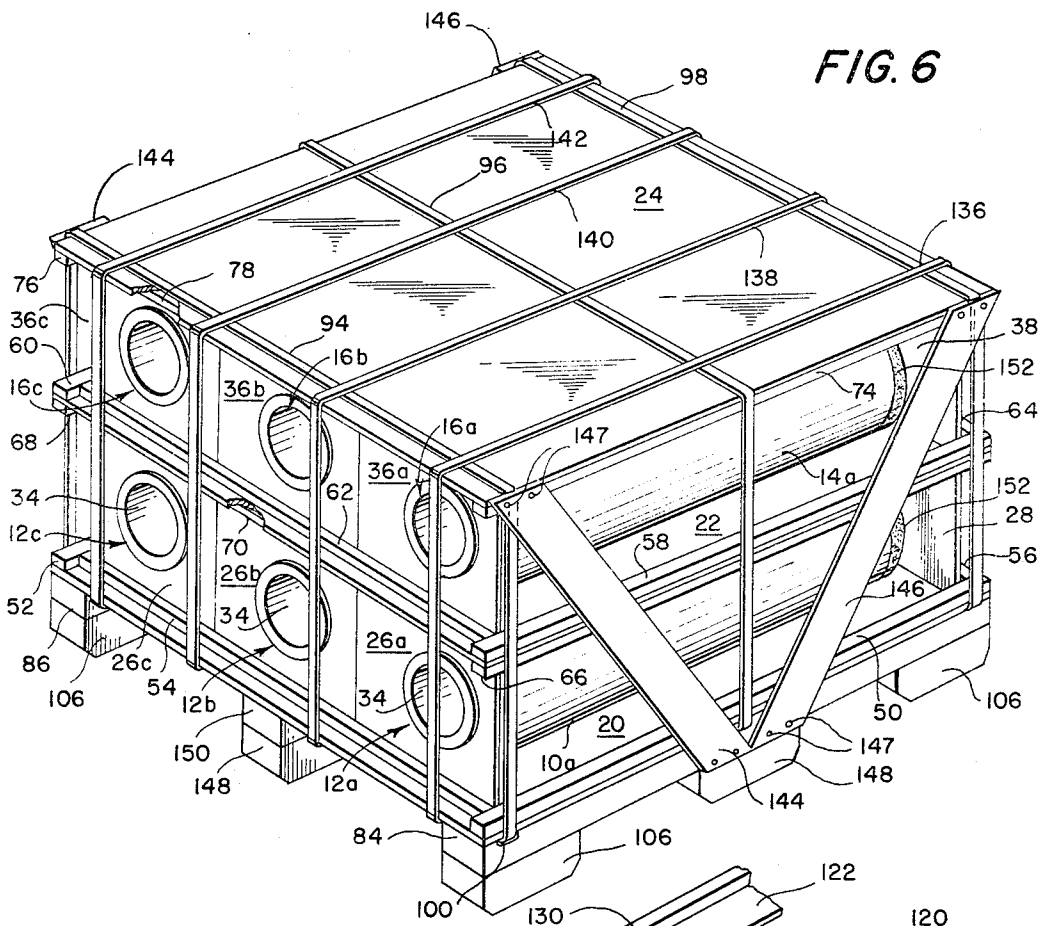
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3 Sheets-Sheet 3



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END SUSPENSION CONTAINER

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U.S. Cl. 206—65

13 Claims

ABSTRACT OF THE DISCLOSURE

A container for enclosing one or more layers of rolls of material is provided. Each roll of material is suspended between two end panels that are each independent of the other elements of the container to facilitate insertion and removal of a roll of material between each pair of end panels. The container includes a bottom member, an intermediate support, and a top member with the end panels separating these horizontally extending elements. To prevent outward movement of the end panels, cleats are provided on the bottom member, intermediate support, and the top member. Securing means extend around the container to prevent the bottom member, intermediate support, and top member from moving with respect to each other. Battens are attached on the lower surface of the bottom member to provide additional strength for the container. Skids may be mounted on the battens to provide access for a lifting means to permit lifting the container, and diagonal bracing may be attached to the sides of the container to further strengthen the container.

This invention relates to end suspension containers and more particularly to an improved end suspension container designed for holding articles such as rolls of plastic film, paper, cloth, and the like that must be suspended during shipping and storage.

Sheets of plastic film, paper, and cloth are commonly rolled about a hollow cylindrical core to form a roll. In roll form the sheet material is convenient to handle and takes up a minimum of storage and shipping space.

To prevent damage to rolls of easily deformed materials such as velvet cloth and plastic film, when the rolls are stored in containers, it has been customary to suspend rolls of these materials by the ends of the core on which they are rolled. Due to the bulk and weight of many cloth and film rolls, it is difficult to place such rolls in the suspension containers, and problems have been encountered in removing the rolls from the containers.

These article handling problems have been especially acute in multiple layer containers, that is, in containers where at least two rolls of film are vertically superimposed in an integral container.

Another problem of multiple layer end suspension containers for rolls of material has been the tendency of the rolls of material to be jarred out of their support means in the container by impacts received during shipping and handling of the assembled container. There has been a continuing search for lightweight, inexpensive end suspension containers that can prevent outward longitudinal movement of a roll of material relative to the container.

Accordingly, it is a primary object of this invention to provide a new and improved end suspension container.

A further object of the invention is to provide a new and improved suspension container that is light-in-weight and yet has sufficient strength to withstand the forces encountered in transporting and shipping the container.

A still further object of this invention is to provide a container that may be easily assembled around articles

already positioned on suspension devices to obviate the problems involved in placing the articles to be suspended within pre-formed shipping containers having vertical side walls.

Another object of this invention is to provide a suspension container that prior to use may be shipped and stored in a knocked-down form and requires a minimum of shipping and storage space.

Additional objects of the invention will be set forth in part in the description that follows, and in part will be obvious from the description, or may be learned by practice of the invention. The objects and advantages of the invention are realized and attained by means of the instrumentalities and combinations particularly pointed out in the appended claims.

To achieve the foregoing objects and in accordance with the purpose of the invention as embodied and broadly described, an end suspension shipping container is provided that comprises a bottom member; at least one pair of independent end panels with the end panels of each pair positioned at opposite ends of the bottom member, the end panels including suspension means for engaging an article to permit suspension of the article between the end panels; abutment means on the upper surface of the bottom member for preventing outward movement of the bottom of the end panels; a top member positioned on the top of the end panels; abutment means on the lower surface of the top member for preventing outward horizontal movement of the top of the end panels; and securing means for preventing lateral movement of the top member and the bottom member with respect to each other.

Preferably, the securing means comprises strapping that extends laterally around the container, and the container includes reinforcing means such as a pair of reinforcing battens mounted on the lower surface of the bottom member, each of the battens including a plurality of spaced grooves to permit insertion of the strapping there-through.

It is also preferred that the suspension means includes an opening in each of the end panels and suspension members that are inserted therein for engaging the article.

The invention also includes a multiple layer, end suspension shipping container comprising a bottom member; at least one pair of independent lower end panels with the end panels of each pair positioned at opposite ends of the bottom member, the end panels including suspension means for engaging an article to permit suspension of the article between the end panels; abutment means on the upper surface of the bottom member for engaging the lower end panels to prevent outward movement of the bottom of the lower end panels; an intermediate support positioned on the lower end panels; at least one pair of independent upper end panels with the end panels of each pair positioned at opposite ends of the intermediate support, the upper end panels including suspension means for engaging an article to permit suspension of the article between the upper end panels; abutment means on the lower and upper surface of the intermediate support for engaging the upper end panels and the lower end panels, respectively, to prevent outward horizontal movement of the upper end of the lower end panels and the lower end of the upper end panels; a top member positioned on the upper end panels; abutment means on the lower surface of the top member for engaging the upper portion of the upper end panels to prevent outward movement thereof; and securing means for preventing lateral movement of the top member, the intermediate support, and the bottom member with respect to each other.

Preferably, the abutment means on the bottom member, the intermediate support, and the top member com-

prise cleats attached adjacent the periphery of these members, and the suspension means comprises a flanged tube and an opening in each end panel that permits an end of said flanged tube to be inserted therein.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements shown and described.

It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory but are not restrictive of the invention. The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate embodiments of the invention, and together with the description, serve to explain the principles of the invention.

Of the drawings:

FIG. 1 is a perspective view of a container constructed in accordance with this invention;

FIG. 2 is an exploded perspective view partially in section, of the container of FIG. 1, with the securing means, the articles to be suspended, and all but one tube omitted;

FIG. 3 is an elevation view of the right end of the container of FIG. 1;

FIG. 4 is a perspective view of the container of FIG. 1 partially enclosed by a cover and with the securing means omitted;

FIG. 5 is a perspective view of a portion of another embodiment of the intermediate support of FIG. 1; and

FIG. 6 is a perspective view of another container constructed in accordance with this invention.

Referring to FIGS. 1 and 3, a two-layer end suspension container for shipping and storing four rolls of sheet material is illustrated. Each layer consists of two rolls with each roll including a web of sheet material wound about a hollow core.

Lettered subscripts have been used in the following detailed description to denote similar elements of the container and rolls that appear in the drawing more than once.

The lower layer consists of two rolls **10a** and **10b** and the upper layer includes rolls **14a** and **14b**. Each roll is formed by a web of sheet material wound around a hollow core **11**. Flanged tubes **12a** and **12b** and flanged tubes **14a** and **14b** are inserted into the hollow cores of rolls **10a**, **10b**, **14a**, and **14b** to suspend these rolls as will be described in more detail below.

As shown in FIG. 1, the container includes a bottom member **20**, an intermediate support **22** and a top member **24** that are each disposed in substantially parallel spaced horizontal planes. Each of these horizontal members is generally rectangular in shape with the length of each of the members preferably slightly exceeding the length of the rolls.

The widths of bottom member **20**, intermediate support **22**, and top member **24** are determined by the number of rolls to be suspended in each layer, for example, in the container of FIGS. 1-4, the width of each of these members slightly exceeds the sum of the diameters of rolls **10a**, **10b**, or **14a** or **14b**.

In accordance with the invention, pairs of opposed lower end panels are positioned on the bottom member with the end panels of each pair positioned at opposite ends of the container. These end panels are independent of other elements of the container and each includes suspension means for engaging one end of an article or article support to permit suspension of the article between each pair of opposed end panels.

As here embodied, and as illustrated in FIGS. 1-4, the container includes a pair of opposed lower end panels **26a** and **28a** and another pair of opposed lower end panels **26b** and **28b**. The suspension means of each of the end panels includes a circular opening **34**, best seen in FIG. 2, that permits insertion of an article or article support such as a flanged plug therethrough. In the container of FIG. 1, an end of a flanged tube **12a** or **12b** is inserted through openings **34** and into the hollow central core **11**

of the rolls. The tubes have a flanged edge **35** that abuts the outer surface of the end panels. Preferably the diameter of each of the openings slightly exceeds the outside diameter of the tube that is inserted therethrough, and the inside diameter of the core **11** of the rolls slightly exceeds the outside diameter of the tubes.

Preferably the height and width of each of the end panels are equal and the dimensions of these end panels are equal so that they may be used interchangeably. The height and width of the end panels should exceed the diameter of the roll that is to be suspended therefrom. The thickness of the end panels is made sufficient to resist longitudinal compressive forces caused by loading the container with rolls of film and preferably, to resist forces resulting from stacking one or more suspension containers on top of each other.

The end panels may be formed of a variety of strong, lightweight materials, such as wood, plywood, and synthetic organic polymeric material.

As shown in FIGS. 1-4, intermediate support **22** is positioned on the top edge of lower end panels **26a**, **26b**, **28a**, and **28b**, and is supported thereby. As here embodied the intermediate support is a flat panel of a suitable material such as plywood.

A pair of opposed upper end panels consisting of end panels **36a** and **38a** is positioned at the ends of intermediate support **22** above end panels **26a** and **28a** and another pair of opposed upper end panels consisting of end panels **36b** and **38b** is positioned on intermediate support **22** above end panels **26b** and **28b**. The upper end panels each include a circular opening **44** that provides a suspension means for a tube **16a** or **16b**. Preferably the size and shape of the upper end panels is identical to the size and shape of the lower end panels so that the upper and lower end panels may be used interchangeably during assembly operations.

Top member **24** is positioned on the top edge of the upper end panels to protect the top surface of rolls **16** and to help prevent outward horizontal movement of the top portion of the upper end panels as will be described below.

In accordance with the invention, abutment means are provided on the upper surface of bottom member **20**, on the upper and lower surface of the intermediate support **22** and on the lower surface of top member **24** for preventing outward horizontal movement of the end panel. The abutment means engage the edges of the end panels to prevent outward movement of the end panels but do not extend between the horizontal members a distance that would interfere with the loading and assembly operations.

As here embodied and as best illustrated in FIGS. 1 and 2, the abutment means on bottom member **20** include longitudinally extending cleats **50** and **52** and transverse cleats **54** and **56** that are attached on bottom member **20** to form a continuous abutment that projects upwardly from the periphery of bottom member **20**. Longitudinal cleats **58** and **60** and transverse cleats **62** and **64** are attached on the top surface of intermediate support **22** in a similar manner. A pair of longitudinal cleats **66** and **68** and a pair of transverse cleats **70** and **72** are attached to the lower surface of intermediate support **22** about the periphery of the support to form a peripheral abutment. In similar fashion, a pair of longitudinal cleats **74** and **76**, and a pair of transverse cleats **78** and **80** are attached to the lower surface of top member **24** along the edges of the top member to form a peripheral abutment that depends from the top member.

Preferably, the length of the cleats is sufficient to provide a continuous abutment adjacent the edge of the surface to which the cleats are attached. The width of each of the longitudinal cleats is preferably predetermined to be slightly less than one-half the difference between the width of the horizontal member (the bottom member, intermediate support or top member) and the combined widths of the end panels across one end of

one layer. The height of the cleats, that is, the dimension that the cleats project either upward or downward from the surface to which they are attached, is selected to be sufficient to prevent outward movement of the end panels and preferably to strengthen the horizontal member to which the cleats are attached.

The cleats may be made from a variety of materials with wood being a presently preferred material. The cleats are attached to the horizontal members by conventional means such as nails, or staples (not shown).

As best shown in FIG. 1, longitudinal outward movement of the top and bottom ends of both the upper and lower end panels is prevented by the adjacent transverse cleats attached on the bottom, intermediate support, and top member. Longitudinal inward movement of an end panel is preferably prevented by the end of the roll of material. Optionally, padding (not shown in FIG. 1) may be inserted between the ends of the rolls and the adjacent end panel to cushion the ends of the roll. Transverse movement of the end panels is prevented by the longitudinal cleats that abut top and bottom portions of the outside edge of the end panels.

In accordance with the invention, reinforcing means may be mounted on the lower surface of the bottom member for strengthening the containers to permit transportation of the containers by a lifting means and stacking of the containers one on top of each other without damage to the containers and articles at the bottom of the stack. As here embodied, and as illustrated in FIG. 3, the reinforcing means includes a pair of longitudinally extending battens 84 and 86, and a pair of transversely extending braces 88 that extend between the battens.

Preferably, battens 84 and 86 extend parallel with and are spaced from the longitudinal edges of bottom member 20 and extend the length of the bottom member. Braces 88 are positioned adjacent the opposed ends of bottom member 20, and preferably a brace 88 is placed directly under end panels 26a and 26b and another brace 88 is placed directly under end panels 28a and 28b to assist in the transfer of compressive forces from the end panels to the base of the container.

Battens 84 and 86 and braces 88 may be made of a variety of strong, relatively lightweight materials such as wood. The battens and braces are attached to the bottom by conventional means such as nails (not shown).

In accordance with the invention, securing means are provided for preventing movement of the top member, intermediate support, and bottom member with respect to each other when the container is assembled. The overall structure of the container allows use of securing means that may be rapidly attached by unskilled labor.

As here embodied and as illustrated in FIGS. 1, 2, and 3, the securing means includes strapping 94, 96, and 98 and six grooves 100. A groove 100 is positioned adjacent each end of battens 84 and 86 with a groove positioned intermediate the ends of each batten. The grooves allow passage of the strapping over the lower surface of bottom member 20 without the necessity of extending the strapping around the battens. The strapping extends laterally around the container and is secured under tension by clips (not shown). The tension on the strapping effectively prevents lateral movement of top member 24, intermediate support 22, and bottom member 20 with respect to each other.

As shown in FIG. 1, a plurality of skid blocks 106 can be mounted on the lower surface of the battens to provide access for lifting means to be transversely inserted over the lower surface of the bottom member. The skid blocks are attached to the battens by conventional means such as nails (not shown).

Referring to FIG. 4, it can be seen that a cover, generally 108, may be provided to form an enclosure about the container of FIG. 1 to protect the articles suspended thereby from dust and small foreign objects. The cover is mounted over the top member 24, the intermediate support 22, and the bottom member 20, and is at least

partially supported by top member 24. Cover 108 includes end walls 110 and side walls 112 that form closed ends and sides for the container, and end flaps 114 and side flaps 116 that may be folded to provide a closed top for the container.

Preferably, if a cover is provided, the strapping 94, 96, and 98, illustrated in FIG. 1, is extended around the cover rather than under the cover so that the strapping helps seal the cover over the sides and ends of the assembled structure.

FIG. 5 illustrates an intermediate support, generally 117, that is a modification of the intermediate support 22 of the container of FIG. 1. The ends of the intermediate support 117 are identical so the structure of only one end is illustrated and described. Intermediate support 117 includes three transversely spaced longitudinally extending strips 118, 120, and 122 that are connected at one end by a cleat 124 extending across the lower surface of each of the strips and a cleat 126 that extends across the upper surface of each of the strips. Longitudinal cleats 130 are attached to the outer strips 118 and 122 on the upper surface of these strips, and longitudinal cleats 132 are attached on the lower surfaces of these strips.

Preferably, strips 118, 120, and 122 are of equal length and the strips terminate so that the ends of the strips are aligned to fall in transverse planes adjacent the ends of the container. The cleats are attached to the strips by conventional means such as nails or wire staples (not shown). The strips may be of any convenient material of suitable strength. Plywood is a presently preferred material. The use of strips to form the intermediate support allows significant cost savings over the use of a panel having similar load bearing capacity.

FIG. 6 illustrates another embodiment of the invention that includes three pairs of lower end panels and three pairs of upper end panels. Elements of FIG. 6 that are similar to elements of FIG. 1 have been given the same numbers.

The securing means of the embodiment of FIG. 6 includes additional strapping 136, 138, 140, and 142 and diagonal braces 144 and 146. The additional strapping extends longitudinally over top member 24 and extends longitudinally under bottom member 20, and extends over the ends of the container. Clips (not shown) are used to secure the additional strapping under tension.

Diagonal braces 144 and 146 are attached by conventional means such as nails 147 to the side edges of top member 24, and to battens 84 and 86 to strengthen the container.

Additional skid blocks 148 and an additional batten 150 are attached to the lower surface of bottom member 20 to provide a strong stable base for the container.

Another variation in the container of FIG. 6 is the position of the transverse cleats 54, 62, 70, and 78 at one end of the container. In the embodiment of FIG. 6, these transverse cleats are spaced from the end of the horizontal members (bottom member 20, intermediate support 22, and top member 24) to which they are attached. A predetermined distance is used for the spacing so that end panels 26a, 26b, 26c, 36a, 36b, and 36c of the container, when abutting the inside surface of these cleats, are spaced apart from the end panels at the other end of the container, a distance that slightly exceeds the length of the rolls to be packaged.

Thus, articles having differing lengths may be conveniently packaged in containers formed from a bottom member 20, an intermediate support 22, and a top member 24 that have the same length.

It will be apparent to those skilled in the art that the longitudinal and transverse cleats that form abutments on bottom member 20, intermediate support 22, and top member 24 may be positioned inwardly of both the longitudinal and transverse edges of these horizontal members to accommodate end panels of various widths and articles of various lengths.

Longitudinal inward movement of the end panels of the container of FIG. 6 is prevented by the insertion of padding 152 between the ends of the rolls and the end panels. The padding can be felt or a resilient plastic material.

A method for assembling the container of FIGS. 1-3 will now be described. Preferably the elements of the container are shipped to the user in a knocked-down condition. As received by the user, the bottom member would preferably have the battens 84 and 86, braces 88, cleats 50, 52, 54, and 56 and the skid blocks 106 attached thereto. Intermediate support 22 would have cleats 58, 60, 62, and 64 attached on its top surface, and cleats 66, 68, 70, and 72 attached on its lower surface. Top member 24 would have cleats 74, 76, 78, and 80 attached on its lower surface. The end panels and the tubes 12a, 12b, 16a and 16b would be shipped independently of each other and independently of the other elements of the container.

In the packaging of a roll of sheet material, handling equipment such as a horizontally extending cantilevered bar may be conveniently used to suspend the roll of sheet material during the initial steps of assembling the container of FIG. 1. Prior to mounting the core of the roll of film on the bar, a flanged tube 12a is inserted through end panel 28a and the flanged tube and the end panel are inserted into one end of roll 10a. Tube 12a and end panel 28a are moved to the supported end of the bar with the flange 35 of tube 12a adjacent the supported end of the bar and with the hollow core 11 of roll of film 10a telescoped over the cantilevered bar. Alternatively, tube 12a and end panel 28a can be mounted on the bar before their insertion into one end of roll 10a. Desirably, padding is inserted between the end of roll 10a and end panel 28a and the end panel and roll are pushed together so that they abut the padding.

Subsequently, another tube 12a is inserted into opening 34 of end panel 26a and the tube is inserted into the other end of the core of the roll of film. Preferably, padding is inserted between the end of the roll and end panel 26a, and the tube is telescoped into the core until flange 35 abuts the outer surface of the end panel 26a. The roll of film can now be taken off of the cantilevered bar and the end panels 26a and 28a positioned on bottom member 20 to suspend the roll. The weight of roll 10a is transferred to the hollow core 11 of the roll, to the flanged tubes 12a, to the end panels 26a and 28a, and subsequently to bottom member 20, and consequently does not deform the surface of the roll.

In similar fashion, end panels 26b and 28b and tubes 12b are mounted on another roll 10b and the roll of film is subsequently positioned on bottom member 20 adjacent roll 10a where it is supported by end panels 26b and 28b, and tubes 12b.

Intermediate support 22 may now be dropped in position over end panels 26a, 26b, 28a, and 28b with the cleats on the lower surface of the intermediate support forming an abutment to prevent outward movement of the end panels.

After intermediate support 22 is in position, rolls 14a and 14b are mounted on end panels 36a and 38a, and 36b and 38b, respectively, using the procedure outlined above for mounting roll 10a. Next, end panels 36a and 38a, and 36b and 38b can be placed on intermediate support 22 with rolls 14 suspended therebetween.

Subsequently, top member 24 is placed on the upper edge of end panels 36a, 36b, 38a, and 38b with the depending peripheral cleats 74, 76, 78, and 80 forming an abutment to prevent outward movement of the upper portion of these end panels.

After the top member is in place, strapping 94, 96, and 98 is inserted through the grooves 100 in batten 84, extended across the lower surface of bottom member 20, inserted through grooves 100 in batten 86, and extended

over one side of the container, over top member 24, and over the other side of the container. Subsequently, the strapping is secured under tension by clips (not shown).

When a cover such as illustrated in FIG. 4 is utilized to prevent dust or small foreign objects from contacting the roll of product, the cover is preferably mounted on the container after the top member is positioned and before strapping is extended around the container. After the cover is mounted, strapping is extended around the cover and bottom member 20 to secure the container and help place the cover in sealing contact with the remainder of the container.

Assembly of the container of FIG. 6 can proceed in a manner similar to the assembly described above for FIG. 1 with the following variations.

The length of the rolls illustrated in FIG. 6 is significantly less than the length of bottom member 20, intermediate support 22 and top member 24. Consequently, the transverse cleats 54, 62, 70, and 78 at one end of the container are attached by the container manufacturer a predetermined distance inwardly of the end edge of the horizontal members on which they are mounted. The end panels 26a, 26b, 26c, 36a, 36b, and 36c thus abut the transverse cleats and outward longitudinal movement of the rolls relative to bottom member 20, intermediate support 22, and top member 24 is precluded.

Inward longitudinal movement of the end panels is prevented by inserting padding 152 between the ends of the rolls and the end panels and by bringing the end panels and the ends of the rolls into abutting contact with the padding.

Three pairs of end panels 26a and 28a, 26b and 28b, and 26c and 28c are positioned on the bottom member 20, and three pairs of end panels are positioned on intermediate support 22.

After strapping 94, 96, and 98 is secured about the partially assembled structure, additional strapping 136, 138, 140, and 142 is extended around the structure and secured under tension by clips (not shown).

Next, diagonal braces 144 and 146 are fastened to the side edges of top member 24, and the outside surface of battens 84 and 86 by conventional means such as nails 147.

The containers described above can be easily assembled about an article to be suspended therein to reduce the article-handling problems involved in suspending an article in a container having preformed side walls; can be handled by a lifting means; can be stacked one on top of each other without damage to the container and article at the bottom of the stack; and can be produced at a low cost.

It will be apparent to those skilled in the art that various modifications and variations could be made in the containers of the invention without departing from the scope or spirit of the invention.

The invention in its broader aspects is not limited to the specific details shown and described, but departures may be made from such details without departing from the principles of the invention and without sacrificing its chief advantages.

What is claimed is:

1. A multiple layer, end suspension shipping container for shipping rolls of material comprising:

- (a) a plurality of rolls, each of said rolls including a central core and a sheet of material wound around said central core;
- (b) a bottom member;
- (c) at least one pair of independent lower end panels with the end panels of each pair positioned at opposite ends of said bottom member, said end panels including suspension means for engaging the central core of one of said rolls to permit suspension of the roll between said end panels;
- (d) abutment means on the upper surface of said bottom member for engaging said lower end panels to

- prevent outward movement of the bottom of said lower end panels;
- (e) an intermediate support positioned on said lower end panels;
- (f) at least one pair of independent upper end panels with said end panels of each pair positioned at opposite ends of the intermediate support, said upper end panels each including suspension means for engaging the central core of one of said rolls to permit suspension of the roll between said upper end panels;
- (g) abutment means on the upper surface and lower surface of said intermediate support for engaging said upper end panels and said lower end panels, respectively, to prevent outward horizontal movement of the upper end of said lower end panels and the lower end of said upper end panels;
- (h) a top member positioned on said upper end panels;
- (i) abutment means on the lower surface of said top member for engaging the upper portion of said upper end panels to prevent outward movement thereof; and
- (j) securing means for preventing lateral movement of said top member, said intermediate support, and said bottom member with respect to each other.
2. The container of claim 1 wherein said abutment means on said bottom member, said intermediate support and said top member comprise cleats attached adjacent the periphery of said bottom member, said intermediate support, and said top member to prevent outward movement of said end panels.
3. The container of claim 1 including two pairs of lower end panels and two pairs of upper end panels.
4. The container of claim 1 wherein said suspension means includes a flanged tube and an opening in each end panel that permits an end of said flanged tube to be inserted therein.
5. The container of claim 2 wherein said intermediate support includes a plurality of longitudinally extending strips that are connected by said cleats attached to said intermediate support.
6. The container of claim 1 wherein said securing means includes strapping that extends laterally around the container.
7. The container of claim 6 including reinforcing means mounted on the lower surface of said bottom member for strengthening the container to permit stacking of the containers on top of each other.
8. The container of claim 7 wherein said reinforcing means includes a pair of battens mounted on the lower surface of said bottom member, said battens extending longitudinally along said bottom member, and wherein said securing means includes a plurality of spaced grooves in said battens to permit insertion of said strapping there-through.
9. The container of claim 8 including skid blocks mounted on the lower surface of each of said battens to provide access for lifting means.
10. A multiple layer, end suspension shipping container for shipping rolls of sheet material wound on a hollow core, comprising:
- (a) a plurality of rolls, each of said rolls including a hollow central core and a sheet of material wound around said central core;
- (b) a bottom member;
- (c) at least one pair of independent lower end panels with the end panels of each pair positioned at oppo-

- site ends of said bottom member, each of said end panels including an opening;
- (d) a plurality of cleats positioned adjacent the periphery of the upper surface of said bottom member and attached thereto for forming abutments that prevent outward movement of the bottom of said end panels;
- (e) an intermediate support positioned on the upper edge of said lower end panels;
- (f) at least one pair of independent upper end panels positioned at opposite ends of said intermediate support, each of said upper end panels including an opening;
- (g) a plurality of cleats attached to the lower and upper surface of said intermediate support for forming abutments to prevent outward horizontal movement of the top of said lower end panels and bottom of said upper end panels, respectively;
- (h) a top member positioned on the top edge of said upper end panels;
- (i) a plurality of cleats attached on the lower surface of said top member for forming abutments that prevent outward movement of the top of said upper end panels;
- (j) a plurality of flanged tubes sized for insertion through said openings in said lower and upper end panels and for insertion into the hollow core of the rolls to permit suspension of the rolls by said end panels;
- (k) reinforcing means for strengthening the container to permit stacking of the containers on top of each other; and
- (l) strapping extending laterally around the container for preventing lateral movement of said top member, said intermediate support, and said bottom member with respect to each other.
11. The container of claim 10 including a cover for forming closed sides, ends, and a closed top for the container.
12. The container of claim 10 wherein said reinforcing means includes a pair of battens mounted on the lower surface of said bottom member, said battens extending longitudinally along said bottom member, and wherein said securing means includes a plurality of spaced grooves in said battens to permit insertion of said strapping there-through.
13. The container of claim 10 wherein said intermediate support includes a plurality of longitudinally extending strips that are connected by said cleats attached to said intermediate support.

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