

Dec. 3, 1968

D. D. OVERTON III

3,414,152

KNOCKDOWN CONTAINER

Filed Aug. 11, 1967

3 Sheets-Sheet 1

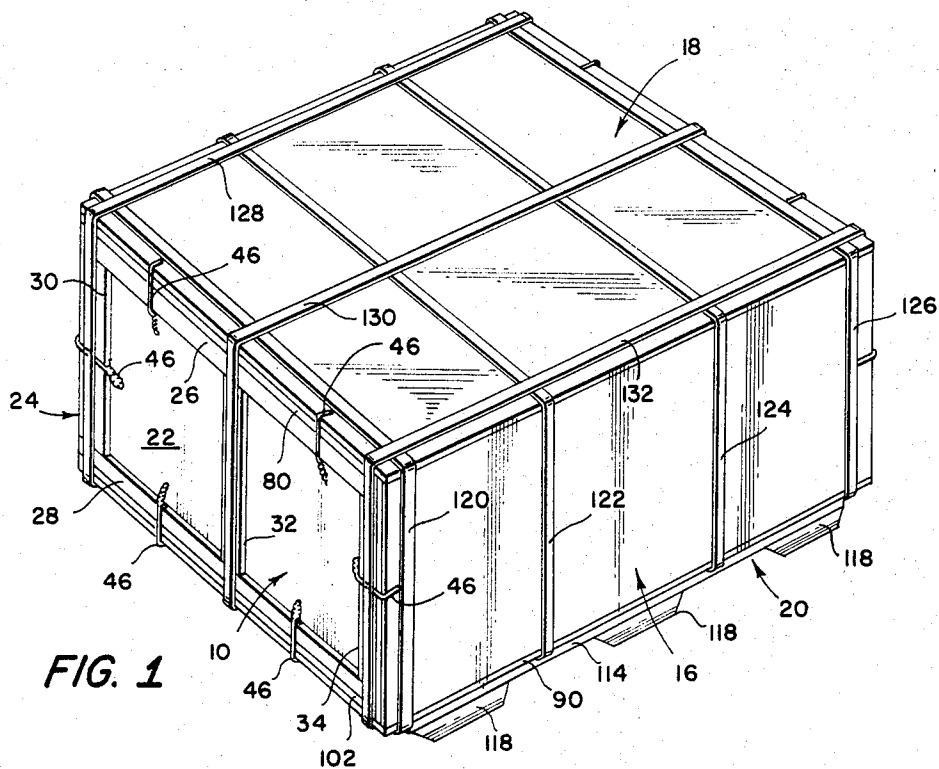


FIG. 1

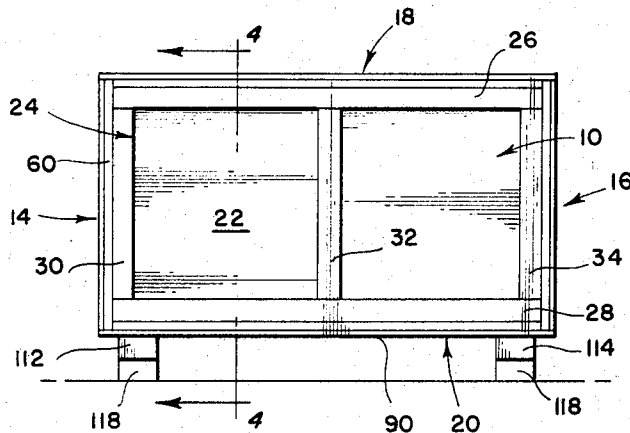


FIG. 3

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3 Sheets-Sheet 3

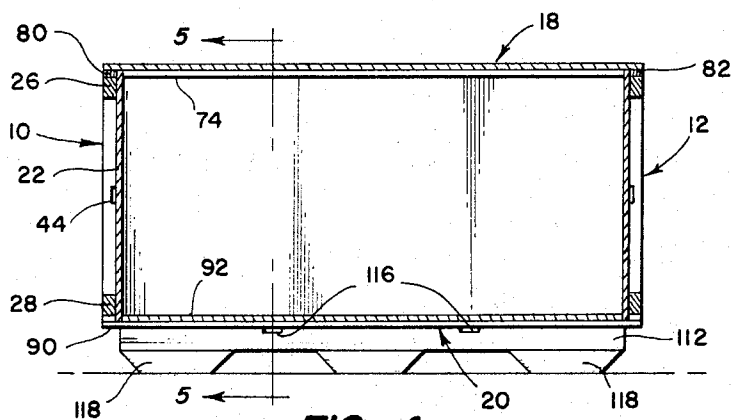


FIG. 4

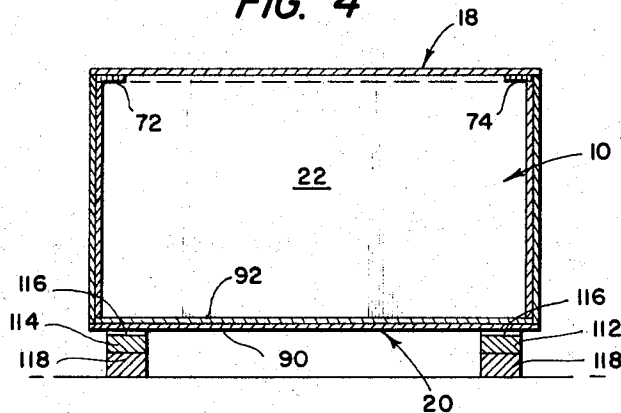


FIG. 5

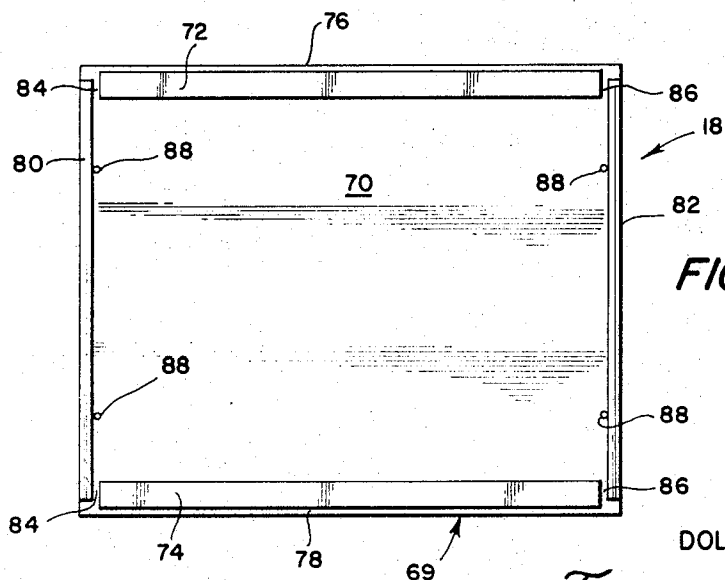


FIG. 6

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KNOCKDOWN CONTAINER

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13 Claims. (Cl. 217-12)

ABSTRACT OF THE DISCLOSURE

A rectangular container is provided having no projections on its outer surface, that is capable of being rapidly assembled and disassembled. This container includes two end sections each having a panel with a frame on one side and with the edge of the panel extending beyond the frame to form lips on the top, bottom, and side edges of the end section. Two side sections are also provided, each having a wall with a lip on its top and bottom edges and a groove on each of its ends for receiving one of the lips on the side edges of the end sections. The container further includes top and bottom sections each having a wall with a lip on its side edges for engaging the top and bottom lips, respectively, of the two side sections, and a groove on each of its ends for receiving the top and bottom lips, respectively, of the end sections. Fasteners are provided to hold the sides, top, and bottom sections in engagement with the end sections.

This invention relates to containers. More particularly, this invention relates to containers capable of being rapidly assembled and disassembled which do not require the use of nails in their assembly and which have smooth interior and smooth exterior surfaces with no outwardly projecting parts, other than skids, which could be broken or damaged during handling of the assembled container.

In the past, a number of containers have been proposed which may be assembled at the place where they are being used. The containers most commonly used today are made of wood and require the use of nails to assemble the container. When the nails are driven into the container, they frequently split the container requiring that the split member be replaced to restore the structural strength of the container. Additionally, improperly aligned nails frequently project into the interior of the container causing damage to the contents or project out of the container leaving a dangerous projecting point.

To eliminate the use of nails, it has been proposed in the past to use containers having interlocking parts which can then be held together by clips or wires or the like. However, while this type of construction has eliminated some of the problems of the prior art, it has created new problems. The structure of these containers which makes them interlocking requires a series of protruding or projecting edges around the container. These projecting edges are a source of frequent damage to the containers. When the assembled containers are being stacked and transported, they are frequently dropped or jostled about, causing numerous blows to the projecting edges.

A blow to one of the protruding edges can cause serious damage to the container, perhaps breaking the container open and exposing its contents. Thus, these containers are unsatisfactory for multiple use since they require frequent replacement of damaged parts.

Attempts to provide an interlocking container having no protruding edges have for the most part been unsuccessful since they have required that the container be weakened structurally to achieve the interlocking effect without utilizing protruding edges. For example, one

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such container provides side members which are supported at their ends by the end members of the container but which are not supported at their top and bottom by the top or bottom members of the containers. Such a container is subject to being crushed during handling and does not provide the weatherproofing effect of a container which has an interlocking construction along each of its edges.

Accordingly, it is the primary object of this invention to provide a new and improved container which may be rapidly assembled and disassembled.

A further primary object of this invention is to provide a new and improved container having interlocking parts and no projecting edges without sacrificing the structural integrity of the container.

Another object of this invention is to provide a new and improved container which may be repeatedly reused.

A still further object of this invention is to provide a new and improved container which may be rapidly assembled and disassembled by unskilled labor.

A further object of this invention is to provide a new and improved container which may be rapidly assembled and disassembled and which does not require the use of nails or the like in its assembly.

A still further object of this invention is to provide a new and improved container utilizing an interlocking construction to impart weatherproofing characteristics to the assembled container.

A still further object of this invention is to provide a new and improved container having high volumetric efficiency and low-tare weight.

A still further object of this invention is to provide a new and improved container which may be shipped in a knockdown form and which requires a minimum of storage and assembly space.

Additional objects and advantages 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 being 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 herein, the container of this invention comprises two end sections, each of said end sections including a rectangular panel and a rectangular frame of substantially uniform thickness secured to one side of said panel, said frame being slightly smaller than the panel to provide top, bottom and side lips comprising a portion of the panel extending along each edge of said end section; two side sections, each of said side sections including a rectangular wall having a lip on each of its top and bottom edges and a groove on each of its ends extending parallel with its end edges, said groove being slightly wider than the thickness of one of the side lips of one of said end sections, being of a depth substantially the same as the width of one of the side lips of one of said end sections, and being spaced inwardly from the end edge of said side section a distance substantially the same as the thickness of said frame of said end sections; and top and bottom sections each including a rectangular wall having a lip on each of its side edges of a width substantially the same size as the thickness of one of said top or bottom lips of side sections, and a groove on each of its ends extending parallel with its end edges, said groove being slightly wider than the thickness of one of said top or bottom lips of one of said end sections, being of a depth substantially the same as the width of one of said top or bottom lips of one of said end sections, and being

spaced inwardly from the end edge of said top or bottom section a distance substantially the same as the thickness of said frame of one of said end sections.

Preferably the top, bottom and side sections of the container each have holes near their end edges and the end sections each have slots in the frame aligned with each of the holes of the top, bottom and side sections to permit fasteners to be inserted through the holes in the top, bottom and side sections and through the slots in the end sections for securing the top, bottom and side sections to the end sections.

It is also preferred that the bottom section of the container have skids mounted on its underside.

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 one embodiment of the invention, and together with the description, serve to explain the principles of the invention.

In the drawings:

FIG. 1 is a perspective view of one embodiment of the container of this invention.

FIG. 2 is an exploded view of the container of FIG. 1 with the straps removed.

FIG. 3 is an end elevation of the container of FIG. 1 with the straps and tie wires removed.

FIG. 4 is a section view of the container shown in FIG. 3 taken along line 4—4 of FIG. 3.

FIG. 5 is a section view of the container shown in FIG. 4 taken along line 5—5 of FIG. 4.

FIG. 6 is a bottom view of the top section of the container illustrated in FIG. 1.

As shown in the drawings, the container of this invention comprises a pair of substantially identical end sections generally 10 and 12, a pair of substantially identical side sections generally 14 and 16, a top section generally 18 and a bottom section generally 20.

The container of this invention may be constructed of any material but is preferably constructed of wood with the panels being plywood. Where two (2) panels are used together, is preferred that the grains of the two panels run in opposite directions to add strength to the container. The various parts of the individual sections may be secured together in any suitable manner as by gluing, nailing or wire stitching, but preferably, the means for securing the parts together are such that no sharp points extend out of the finished section.

In accordance with the invention, the two end sections each include a rectangular panel and a rectangular frame of substantially uniform thickness secured to one side of the panel with the frame being slightly smaller than the panel to provide a lip comprising a portion of the panel extending along each edge of the end section. The term "lip" as used herein refers to a projecting edge having an abutment or shoulder at its inner end. Since end sections 10 and 12 are substantially identical, only end section 10 will be described in detail.

As here embodied, and as best seen in FIGS. 1-3, the end section generally 10 comprises a rectangular plywood panel 22 with a rectangular wooden frame, generally 24, mounted on its outside surface. Frame 24 may be secured to panel 22 in any suitable manner as by staples or wire stitches on the inside of panel 22 and extending into frame 24. Preferably the means for attaching frame 24 to panel 22 are such that no sharp points extend out of the inside of the panel or out of the outside of the frame.

Frame 24 is comprised of two longitudinal battens 26 and 28, and three vertical battens 30, 32 and 34. The vertical battens extend between the longitudinal battens with one vertical batten being located at each end of

the frame and one at the frame's midpoint. Preferably, the battens are all of the same thickness so that the frame has a uniform thickness and will not project beyond the edges of the assembled container.

As may be seen in FIG. 2, end section 10, includes lips 36, 38, 40, and 42 extending along each edge of the end section. As may be seen, the lips are formed by a portion of panel 22 which extends beyond the edge of frame 24, with frame 24 providing an abutment at the inner edge of each of the lips. Preferably, the top and bottom lips 36 and 40 are of the same width and thickness and the two (2) side lips 38 and 42 are of the same width and thickness. This uniformity of dimension permits ease of assembly, since the end sections will have no arbitrary top or bottom and can be used in either position without affecting the remainder of the assembly. As here embodied, all four of the lips are of the same width and thickness.

A plurality of slots 44 are provided in frame member 24 adjacent panel 22. Fasteners such as tie wires 46 are used in conjunction with slots 44 to hold the various members of the container together as will be described in more detail hereinafter.

In accordance with the invention the container includes two side sections, each including a rectangular wall having a lip on its top and bottom edges and a groove on each of its ends extending parallel with the end edges. The groove is slightly wider than the thickness of one of the side lips of one of the end sections, is of a depth substantially the same as the width of one of the side lips of one of the end sections and is spaced inwardly from the end edge of the side section a distance substantially the same as the thickness of the frame of the end sections. Since side sections 14 and 16 are substantially identical, only side section 14 will be described in detail.

As here embodied and as may be best seen in FIG. 2, side section 14 comprises a rectangular wall, generally 47, having an outer rectangular plywood panel 48 and an inner rectangular plywood panel 50 mounted on its inside surface. Preferably panels 48 and 50 are arranged so that their grains run in opposite directions to provide extra strength to wall 47. Inner panel 50 is substantially the same shape as outer panel 48 but is slightly smaller to provide lips 52, 54, 56, and 58 comprising a portion of the outer panel extending along each edge of the side section. Preferably top lip 52 and bottom lip 56 are substantially identical in size and end lips 54 and 58 are substantially identical in size. One of a pair of substantially identical cleats 60 and 62 is mounted on each of the end lips 54 and 58, respectively, of the side sections and extends to the top and bottom of outer panel 48.

Cleats 60 and 62 are substantially the same width as the thickness of the battens of frame member 24 of the end sections and are positioned substantially flush with the outer edge of lips 54 and 58 on the same side of panel 48 as panel 50. The width of each of end lips 54 and 58 of the side sections is sufficient to provide two (2) substantially identical grooves 64 and 66 between inner panel 50 and cleats 60 and 62. Grooves 64 and 66 are slightly wider than the thickness of side lips 38 and 42 of the end sections to permit the side lips of the end sections to be inserted into the grooves when the container is assembled.

Since cleats 60 and 62 are substantially the same width as the thickness of the battens which make up frame 24 of the end sections, the assembled container will have a smooth outer surface at the junction of the cleats of the side sections and the frame of the end sections. Cleats 60 and 62 are of a thickness substantially the same as the width of lips 38 and 42 of the end sections and thus cleats 60 and 62 will abut flush against frame 24 of the end sections when the container is assembled.

As best seen in FIGS. 1 and 2, each of the side section 14 and 16 has two (2) holes 68 which are in align-

ment with slots 44 in battens 30 and 34 of end sections 10 and 12. Tie wires 46 extend through holes 68 and slots 44 to hold the side sections 14 and 16 in position with end sections 10 and 12.

Panel 50 and cleats 60 and 62 are secured to panel 48 by any suitable means such as wire stitches. The uniform dimensions of lips 52 and 56 and grooves 64 and 66 permit side sections 14 and 16 to be assembled without regard to which is the top and which is the bottom of the section.

In accordance with the invention, top and bottom sections are provided each including a rectangular wall having a lip on each of its side edges of a width substantially the same size as the thickness of one of the lips of the side sections and a groove on each of its ends extending parallel with its end edges. The groove is slightly wider than the thickness of the top or bottom lip of one of the end sections, is of a depth substantially the same as the width of the top or bottom lips of one of the end sections, and is spaced inwardly from the end edge of the top or bottom section a distance substantially the same as the thickness of the frame of one of the end sections.

As here embodied, the top section 18, which may be best seen in FIGS. 2 and 6, comprises a rectangular wall 69 including a rectangular plywood panel 70 having a pair of substantially identical locking strips 72 and 74 secured by suitable means to its undersurface with one of the locking strips extending substantially parallel to each of the side edges of panel 70 but spaced inwardly of the side edge a distance sufficient to provide two (2) substantially identical lips 76 and 78 having a width substantially the same size as the thickness of upper lips 52 of the side sections.

When the container is assembled, lips 76 and 78 rest on the upper lips 52 of side sections 14 and 16 with lips 52 abutting locking strips 72 and 74 and the undersurfaces of locking strips 72 and 74 abutting the upper edges of inner panels 50 of side sections 14 and 16.

Since lips 76 and 78 of top section 18 have the same width as the thickness of upper lips 52 of side sections 16 and 14, the side edges of top section 18 will be flush with the outer surface of the outer panel 48 of side sections 14 and 16 when the container is assembled. Since lips 52 of side sections 14 and 16 have a width substantially the same as the thickness of locking strips 72 and 74, locking strips 72 and 74 may rest against the upper edges of inner panel 50 and give the assembled container structural support and still permit the undersurface of lips 76 and 78 to rest flush against the upper edges of outer walls 48 of end sections 16 and 14.

Each of locking strips 76 and 78 terminates inwardly of the end edges of panel 70 a distance substantially the same as the thickness of top lip 36 of end sections, plus the thickness of the frame 24 of the end sections.

A pair of cleats 80 and 82, having substantially the same width as the thickness of the frame 24 of end sections 10 and 12, are secured in a suitable manner to the underside of panel 70 and thus are on the same side of panel 70 as locking strips 72 and 74. Cleats 80 and 82 extend substantially flush to and parallel with each of the end edges of panel 70 and each terminates inwardly of each of the side edges of panel 70 a distance substantially the same as the thickness of the lip 52 of side section 14 or 16, plus the thickness of one of the cleats 60 or 62 of side section 14 or 16.

The space between the inner edge of each of cleats 80 and 82 and the ends of locking strips 72 and 74 form grooves 84 and 86 slightly wider than the thickness of top lip 36 of end sections 10 and 12 to permit top lip 36 of one of end sections 10 or 12 to be inserted into one of grooves 84 or 86 when the container is assembled. Since cleats 80 and 82 are of substantially the same width as the thickness of frame 24 of end sections 10 and 12, when the container is assembled with lip 36 in groove 84 the outer edge of cleats 80 and 82 will be flush with the outer surface of frame 24 of the end sections. The thickness of cleats 80

and 82 is substantially the same as the width of lip 36 of end sections 10 and 12, and thus the lower edge of cleats 80 and 82 rests flush on the upper edge of frame 24 of end sections 10 and 12.

Since cleats 80 and 82 terminate inwardly of the side edges of top section 18 a distance substantially the same as the thickness of lips 52 plus the thickness of cleat 60 (or 62) of the side sections, cleats 60 (or 62) will rest against and be flush with the sides of frame 24 and also the ends of cleats 80 and 82 of top section 18 when the container is assembled.

Top section 18 has a plurality of holes 88 positioned to be in alignment with slots 44 in end sections 10 and 12 to permit fasteners such as tie wires 46 to be inserted through holes 88 and slots 44 to hold top section 18 in alignment with end sections 10 and 12 when the container is assembled.

As here embodied, bottom section 20, as best seen in FIG. 2, is comprised of a rectangular wall 89 including a rectangular plywood outer panel 90 with a rectangular plywood inner panel 92, of substantially the same shape but with its grain running in the opposite direction, secured to its inner surface by suitable means. Inner panel 92 is slightly smaller than outer panel 90 to provide lips 94, 96, 98 and 100 comprising a portion of the outer panel 90 extending along each edge of wall 89. The two side lips 94 and 98 are substantially identical in size and the two end lips 96 and 100 are substantially identical in size.

Inner panel 92 is preferably of a thickness substantially the same as the width of lip 56 of side sections 14 and 16 so that the bottom edge of inside panel 50 of side sections 14 and 16 will rest on the upper surface of inside panel 92 of bottom section 20 when the container is assembled. This construction adds strength to the container while still permitting side sections 14 and 16 to abut flush with lower panel 90 of bottom section 20 when the container is assembled.

The width of side lips 94 and 98 is substantially the same as the thickness of bottom lips 56 of side sections 14 and 16 so that when side sections 14 and 16 are assembled with lips 56 of the side sections resting on the upper surface of side lips 94 and 98 of the bottom section and with the inner surfaces of the lips 56 resting against the side edges of inner panel 92, the outer surface of panel 48 and the outer edge of panel 90 will form a smooth outer surface at their junction.

Two (2) substantially identical cleats 102 and 104 are mounted on end lips 96 and 100 of bottom section 20. Cleats 102 and 104 extend substantially parallel to and flush with the outer edge of their respective lips on the same side of panel 90 as panel 92. Each of cleats 102 and 104 have a width substantially the same as the thickness of frame 24 and a thickness substantially the same as the width of bottom lip 40 of end sections 10 and 12.

Cleats 102 and 104 terminate inwardly of the side edges of panel 90 a distance substantially the same as the thickness of lips 54 (or 58) of side sections 14 and 16, plus the thickness of cleats 60 (or 62) of side sections 14 and 16.

The width of each of the end lips 96 and 100 of bottom section 20 is sufficient to provide two (2) substantially identical grooves 106 and 108 between cleats 102 and 104 and the end edges of panel 92. The width of grooves 106 and 108 is slightly larger than the thickness of lip 40 (or 36) of the end sections to permit lip 40 to be inserted into the groove when the container is assembled.

Since the width of cleat 102 (or 104) is of the same size as the thickness of frame 24 of end sections 10 and 12 and is of the same thickness as the width of lip 40 of end sections 10 and 12, when the container is assembled lip 40 will rest in groove 106 (or 108) with the outer surface of frame 24 and the outer surface of cleat 102 providing a smooth outer surface at their junction. Further the lower edge of frame 24 will be flush with and rest on the upper surface of cleat 102 (or 104).

Since cleats 102 and 104 terminate inwardly of the side edges of bottom section 20 a distance substantially the same as the thickness of lip 58 (or 54), plus the thickness of cleat 60 (or 62) of the side sections, cleats 60 and 62 will rest against and be flush with the sides of frame 24 and also the ends of cleats 102 and 104 of bottom section 20 when the container is assembled.

A plurality of holes 110 are provided in bottom section 20 in position to be aligned with slots 44 of end sections 10 and 12 when the container is assembled. Fasteners such as tie wires 46 are inserted through holes 110 and slots 44 when the container is assembled to hold the bottom section and end sections in their appropriate position.

Preferably, bottom section 20 has skids mounted on its lower surface so that the assembled container rests on skids and not on its bottom section. It is also preferred that these skids be so arranged that fork lifts, slings and the like may be used in moving the assembled container.

As here embodied and as best seen in FIGS. 1, 3, 4, and 5, two (2) battens 112 and 114 are secured to the lower surface of bottom section 20 each running adjacent to and parallel with one of the side edges of outer panel 90. Battens 112 and 114 are preferably spaced inwardly a short distance from the side edges of outer panel 90 and terminate a short distance inwardly of the end edges of outer panel 90 of bottom section 20.

The purpose of having the battens spaced inwardly from the sides and end edges of bottom section 20 is to permit tying means such as steel bands or straps to be wrapped around the container without interference from battens 112 and 114.

A plurality of slots 116 is provided in the upper surfaces of battens 112 and 114 adjacent panel 90 of bottom section 20. The slots in each of the battens are aligned with the slots of the other batten to permit the tying means to pass through the slots on top of the battens when the container is being secured with tying means.

A plurality of skid blocks 118 are mounted by suitable means on each of the battens 112 and 114. Skid blocks 118 are spaced evenly along the length of the battens leaving open spaces between the skid blocks to provide access for a fork lift. Preferably, skid blocks 118 are beveled to permit easy insertion of fork lifts.

Battens 112 and 114, and skids 118, contrary to the remainder of the container, provide exposed edges and surfaces which are subject to damage during handling of the containers. However, since these members are mounted entirely externally of the container, and do not contribute to the structural integrity of the container, damage to these surfaces will not weaken the container itself nor cause the container to break open. Further, should these members be damaged they can easily be repaired or replaced.

To assemble the container, end sections 10 and 12 are placed on base section 20 with lips 40 (or 36) of the end sections inserted in grooves 106 and 108 of bottom section 20, and with frames 24 facing outwardly. In this position the lips 40 of the end sections 10 and 12 rest in grooves 106 and 108 of bottom section 20, and the lower edge of frames 24 rest on the upper edge of cleats 102 and 104 of bottom section 20. The end edges of lips 94 and 98 of bottom section 20, the outer edge of cleats 102 and 104 of bottom section 20 and the outer surface of the frames 24 of the end sections 10 and 12 form a smooth outer end surface having no parts protruding beyond the plane of the end surfaces.

Tie wires 46 are inserted through holes 110 in bottom section 20 and through slots 44 in frame 24. The ends of tie wires 46 are then twisted together and pushed against the panel 22 of end sections 10 and 12 as shown in FIG. 1.

If desired, the tie wires may be first only inserted through the holes and slots of the various members and then twisted together after both the ends and sides have been assembled on the bottom.

Once the end sections 10 and 12 are in place, side sec-

tions 14 and 16 are placed in position with lips 56 (or 52) of the side sections resting on lips 94 and 98 of bottom section 20 and lips 38 and 42 of end sections 10 and 12 in grooves 64 and 66 of the side sections.

The side edges of panel 92 of the bottom section abut the inner surface of lips 56 of the side sections and align the outer surface of side sections 14 and 16 with the outer edge of side lips 94 and 98 of bottom section 20, thus providing a smooth outer surface on the sides of the container with no parts protruding beyond the plane of the side surfaces.

The edges of cleats 60 and 62 of the side sections rest against the outer edges of frames 24 of the end sections and the outer ends of cleats 102 and 104 of the bottom section. Thus the outer edge of lips 58 and 54, the outer surface of cleats 60 and 62, and the outer surfaces of frame 24 form smooth outer surfaces having no projections.

When side sections 14 and 16 are in place, tie wires 46 are inserted through holes 68 in side sections 14 and 16, and slots 44 in end sections 10 and 12. The ends of tie wires 46 are then twisted together and then pushed against panel 22 of end sections 10 and 12 as shown in FIG. 1.

The container is now ready for loading. Once the container is loaded, top section 18 is placed on the container with lips 76 and 78 resting on the upper edges of lips 52 (or 56) of side sections 14 and 16 and with lips 36 (or 40) of end sections 10 and 12 being inserted in grooves 84 and 86 of top section 18. The undersurfaces of locking strips 74 and 76 rest on the upper edges of panels 50 of sides 14 and 16 and the lower edges of cleats 80 and 82 rest on the upper edges of frames 24 of end sections 10 and 12.

The outer edges of the ends of panel 70 of top section 18, the outer surface of cleats 80 and 82, and the outer surface of frame 24, form smooth end surfaces and complete the smooth end surfaces of the container which has no members projecting beyond the plane of the end surfaces.

Similarly, the outer edge of the lips 78 and 76 and the outer surface of panel 48 of side sections 14 and 16 form smooth side surfaces completing the smooth side surfaces of the container having no members projecting beyond the plane of the end surface.

When top section 18 is in place, tie wires 46 are inserted through holes 88 in top section 18 and slots 44 in end sections 10 and 12. The ends of tie wires 46 are then twisted and pushed against panel 22 of end sections 10 and 12.

Since panel 70 forms the entire outer top surface of the container and panel 90 forms the entire outer bottom surface of the container, it may be seen that the top and bottom surfaces of the container are also smooth, except however that the bottom section preferably has skids mounted on its outer surface.

In this condition the container has sufficient strength to be moved by conveyors or other means if desired. Preferably, however, the container is secured with tying means such as steel straps, placed around the container.

Referring to FIG. 1, it may be seen that tying means, here illustrated as four steel straps, 120, 122, 124 and 126, which are about $\frac{3}{4}$ inch wide, have been placed laterally around the container. Straps 120 and 126 are positioned adjacent the ends of battens 112 and 114. This positioning of straps 120 and 126 places them over end sections 10 and 12 of the container and provides maximum strength while resulting in minimum distortion of the container.

Intermediate straps 122 and 124 are placed laterally around the container with the bottom portions of these straps extending through slots 116 in battens 112 and 114, as may be seen in FIG. 1. The provision of the slots in battens 112 and 114 permits the straps to closely follow the outside configuration of the container and eliminates any bridging which would result if the straps were required to go over battens 112 and 114.

As may also be seen in FIG. 1, straps 128, 130 and 132 are placed longitudinally around the container. Straps 128 and 132 are positioned adjacent the sides of battens 112 and 114 and strap 130 is positioned between the two battens. These straps are also each positioned so that they cross end sections 10 and 12 at one of the vertical battens of frame member 24, thus also providing maximum strength with minimum distortion of the container.

In accordance with the invention a new and improved container has been provided which is capable of being rapidly assembled and disassembled, which does not require the use of nails in its assembly, which has a smooth interior and a smooth exterior surface, and which has no projecting parts, other than the skids, that can be broken or damaged during the handling of the assembled container. It will be apparent to those skilled in the art that various modifications and variations could be made in the present container without departing from the scope or spirit of this invention.

For example, in the preferred embodiment of the invention, the top section 18 is comprised of one panel and utilizes locking strips and cleats to provide the lips, abutting surfaces, and grooves needed to achieve the interlocking construction of this invention. It will be obvious to those skilled in the art that similar structures could be used for the sides and bottom sections of the container rather than the double panel construction used in the preferred embodiment. Also, it will be obvious to those skilled in the art that the top section could be made using the double construction which is used in the sides and bottom walls of the preferred embodiment.

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

What is claimed is:

1. A container capable of being rapidly assembled and disassembled comprising:
 - (a) two end sections, each of said end sections including a rectangular panel and a rectangular frame of substantially uniform thickness secured to one side of said panel, said frame being slightly smaller than said panel to provide top, bottom and side lips comprising a portion of said panel extending along each edge of said end section;
 - (b) two side sections, each of said side sections including a rectangular wall having a lip on each of its top and bottom edges and a groove on each of its ends extending parallel with its end edges, said groove being slightly wider than the thickness of one of said side lips of one of said end sections, being of a depth substantially the same size as the width of one of the side lips of one of said end sections, and being spaced inwardly from the end edge of said side section a distance substantially the same as the thickness of said frame of said end sections;
 - (c) top and bottom sections each including a rectangular wall having a lip on each of its side edges of a width substantially the same size as the thickness of one of the top or bottom lips of said side sections, and a groove on each of its ends extending parallel with its end edges, said groove being slightly wider than the thickness of one of said side lips of one of said end sections, being of a depth substantially the same as the width of one of the top or bottom lips of one of said end sections, and being spaced inwardly from the end edge of said top or bottom section, a distance substantially the same as the thickness of said frame of one of said end sections; and
 - (d) said frame of each of said end sections being provided with slots on its top, bottom and side edges for receiving fastening means and said top, bottom and side sections each having holes which are aligned

with said slots in said frame of said end members whereby fastening means may be inserted through said holes in said top, bottom and side sections and through said slots aligned with each of said holes to secure said top, bottom and side sections to said end section.

2. The container of claim 1 wherein skids are mounted on the undersurface of said bottom section.

3. The container of claim 2 wherein said skids comprise two spaced parallel mounting means each having a plurality of skid blocks mounted thereon.

4. The container of claim 3 wherein said mounting means extend parallel to the side edges of the bottom section but are spaced inwardly of the side edges of said bottom section and terminate inwardly of the end edges of said bottom section to provide space for tying means to be wrapped around the assembled container without having to pass over said skids.

5. The container of claim 4 wherein said mounting means has slots in its upper surface and the slots in each of said mounting means are aligned with corresponding slots in the other of said mounting means to permit tying means to be inserted through the slots and passed around the assembled container.

6. A container capable of being rapidly assembled and disassembled comprising:

- (a) two substantially identical end sections, each of said end sections including a rectangular panel and a rectangular frame of substantially uniform thickness secured to one side of said panel, said frame conforming substantially to the shape of said panel and being slightly smaller than said panel to provide top, bottom and side lips comprising a portion of the wall extending along each edge of said end section;
- (b) two substantially identical side sections, each of said side sections including two rectangular panels secured together with one panel being slightly smaller than the other panel to provide top, bottom and end lips comprising a portion of said larger panel extending along each edge of said side section, said top and bottom lips of said side sections being substantially identical in size and the two end lips of said side sections being substantially identical in size, a cleat of substantially the same width as the thickness of said frame of said end sections mounted on each of said end lips of said side sections, said cleats extending substantially from the top to the bottom of said larger panel and being positioned substantially flush with the outer end of said end lips on the same side of said larger panel as said smaller panel, the width of each of said end lips of said side sections being sufficient to provide a groove between each of said cleats and the outer edge of said smaller panel with said grooves being slightly larger than the thickness of one of said side lips of said end sections to permit one of said side lips of said end sections to be inserted into said groove when the container is assembled;
- (c) a top section including a rectangular panel, a pair of locking strips secured to one side of said panel with one of said locking strips extending substantially parallel to each of the side edges of said panel but spaced inwardly of the side edge of said panel to provide a lip having a width substantially the same size as the thickness of said top lip of one of said side sections, and each of said locking strips terminating inwardly of the end edges of said panel of said top section a distance substantially the same as the thickness of said top lip of one of said end sections plus the thickness of said frame of said end sections, and a pair of cleats substantially the same width as the thickness of said frame of said end sections secured to the same side of said panel of said top section as said locking strips, one of said pair of cleats extending substantially flush to and parallel

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with each of the end edges of said top section with each of said pair of cleats terminating inwardly of the side edges of said panel of said top section a distance substantially the same as the thickness of said top lip of one of said side sections plus the thickness of one of said cleats of said side section with the space between the inner edges of said cleats and the ends of said locking strips forming grooves slightly larger than the width of said top lip of one of said end sections to permit one of said lips of one of said end sections to be inserted in each of said grooves when the container is assembled.

(d) a bottom section including two rectangular panels of substantially the same shape secured together with one panel being slightly larger than the other panel to provide two end and two side lips comprising a portion of the larger wall extending along each edge of said bottom section, the two side lips of said bottom section being substantially identical in size and the two end lips of said bottom section being substantially identical in size, a pair of cleats of substantially the same width as the thickness of said frame of said end section mounted on each of said end lips of said bottom section and extending substantially parallel to and flush with the outer end of said end lip on the same side of said larger panel as said smaller panel, each of said cleats terminating inwardly of the side edges of said larger panel of said bottom section a distance substantially the same as the thickness of said bottom lip of one of said side sections plus the thickness of one of said cleats of said side sections, the width of each of said end lips of said bottom section being sufficient to provide grooves between said cleats and the end edges of said small panel, said grooves being slightly larger than the thickness of said bottom lip of one of said end sections to permit said bottom lip of one of said end sections to be inserted into each of said grooves when the container is assembled.

7. The container of claim 6 wherein each of said frames of said end sections is provided with slots on its top, bottom and side edges for receiving fastening means and said top, bottom and side sections each have holes which

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are aligned with said slots in said frame of said end members whereby fastening means may be inserted through said holes in said top, bottom and side sections and through the slot aligned with each of said holes to secure said top, bottom and side sections to said end section.

8. The container of claim 6 wherein skids are mounted on the undersurface of said bottom section.

9. The container of claim 8 wherein said skids comprise two spaced parallel mounting means each having a plurality of skid blocks mounted thereon.

10. The container of claim 9 wherein said mounting means extend parallel to the side edges of the bottom section but are spaced inwardly of the side edges of said bottom section and terminate inwardly of the end edges of said bottom section to provide space for tying means to be wrapped around the assembled container without having to pass over said skids.

11. The container of claim 10 wherein said mounting means has slots in its upper surface and the slots in each of said mounting means are aligned with corresponding slots in the other of said mounting means to permit tying means to be inserted through the slots and passed around the assembled container.

12. The container of claim 6 wherein each of said panels is constructed of plywood and wherein said two panels of said side sections and said two panels of said bottom sections are arranged so that the grain of one panel is opposite to the grain of the other panel to provide added strength to the container.

13. The container of claim 8 wherein there are three equally spaced skid blocks on each of said mounting means and each of said skid blocks is beveled.

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