

Nov. 20, 1962

W. J. MAXWELL
SHIPPING CONTAINER

3,064,845

Filed Nov. 12, 1957

2 Sheets-Sheet 1

FIG. 1

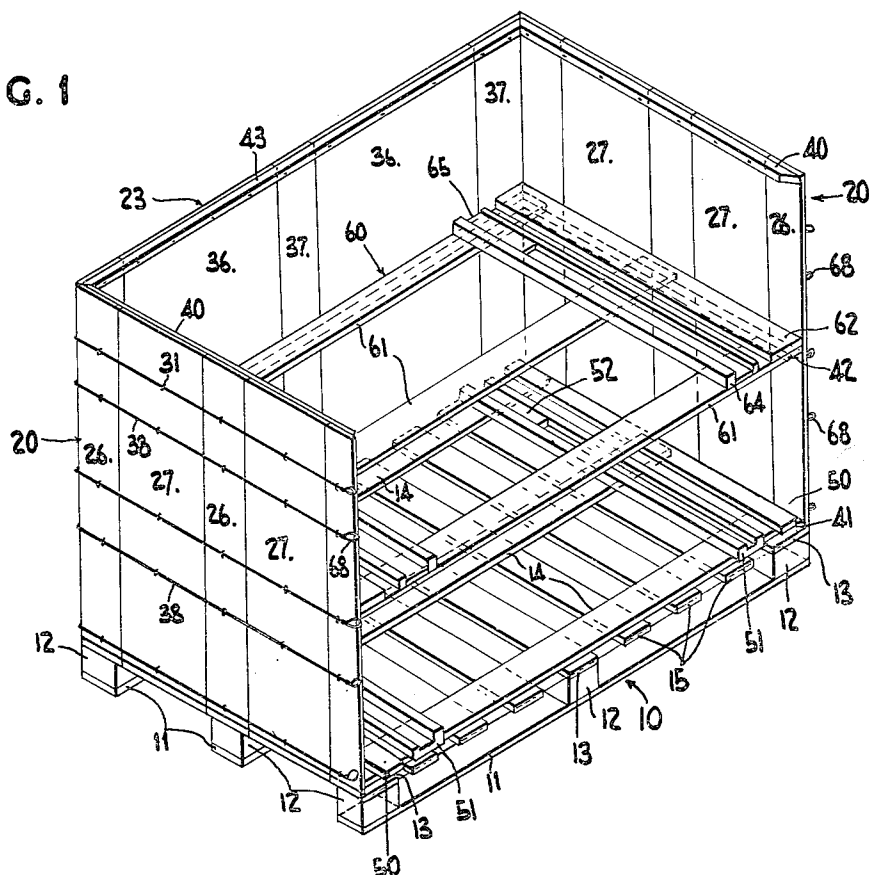
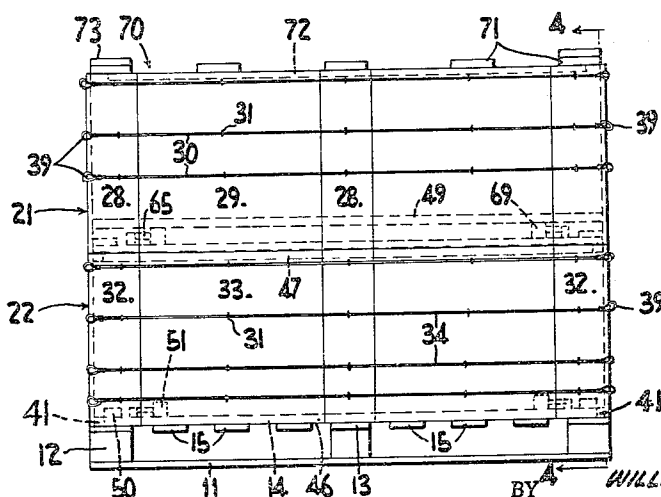


FIG. 2



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2 Sheets-Sheet 2

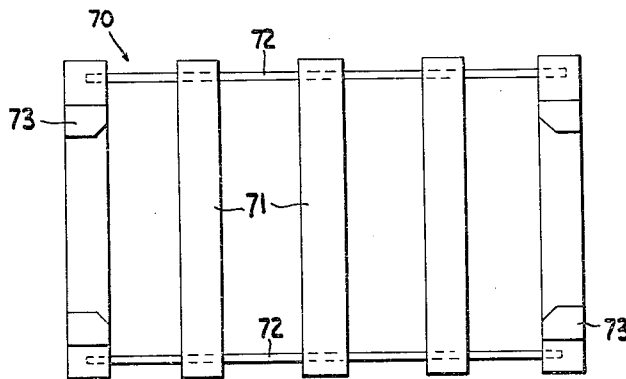


FIG. 3

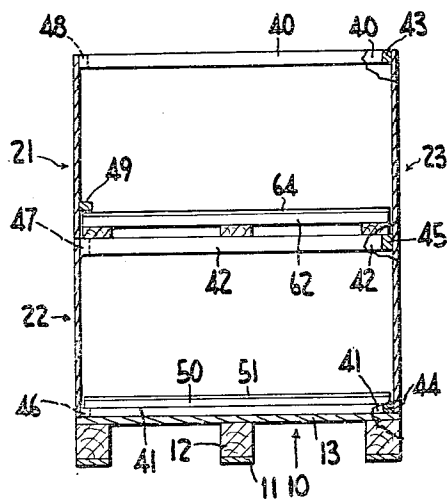


FIG. 4

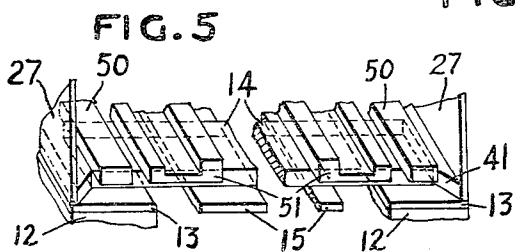


FIG. 5

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3,064,845

SHIPPING CONTAINER

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Filed Nov. 12, 1957, Ser. No. 695,802

7 Claims. (Cl. 217-43)

This invention relates to a shipping container and more especially relates to a palletized shipping container for large curved glass sheets, such as windshields for automobiles.

It has been customary to ship curved windshields to automobile manufacturers and the like in palletized containers. In this type of container one of the sides is readily removable for loading and unloading. The palletized shipping containers are of the returnable type so that after unloading the windshields the container can be knocked down and returned to the manufacturer of the windshields for reassembly and subsequent reuse.

In a conventional container longitudinally spaced multiple corrugated cardboards or the like are secured to the bottom of the container. Slots are in the top portion of each corrugated cardboard. The windshields are placed in the slots so that each windshield is supported vertically by the cardboards at marginal portions between the ends of the curved glass sheet. The concave surface of each glass sheet faces the back or the front of the container, preferably the former. U-shaped corrugated cardboards or the like are placed over a central portion of alternate windshields to maintain the windshields in their spaced relationship and to prevent distortion from the curvature obtained in their manufacture. The legs of these cardboards extend to the base of the windshields. The ends can be protected by corrugated cardboard jackets, also placed on alternate windshields. Between the outside windshields of the stack and the front and back panels of the container protective packaging material is placed to prevent the outside windshields from bumping against the container.

The palletized containers are stored or shipped with at least one container on another. Of course, the height of the interior of the truck or freight car for shipment limits the number of tiers of palletized containers. The windshields of the later designs are larger than those previously made and as a result higher containers are required. This has prevented loading the usual number of tiers of the containers in the truck or freight car so that considerable space in the vehicle is not utilized. The result is a higher transportation charge per windshield in some instances.

To load the container it is necessary to move it into position by a fork lift truck. After the windshields have been placed in the container the front panel and the top are positioned and secured to the rest of the container by wires. The container is replaced by an empty one and the process is repeated. Likewise, a lift truck moves the container into unloading position and the top and front panels are removed. The unloaded container is replaced by another loaded container using a lift truck. With conventional containers having particular dimensions for length and width the number of windshields that can be packaged in it is fixed. Thus the amount of time per windshield for positioning a container into or removing it from a loading or unloading station is also relatively fixed.

It is an object of the present invention to provide a palletized shipping container of a particular length and width that can contain the number of windshields that can be packaged in two conventional containers of the same length and width and that has less than twice the height

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of the conventional container so that the space in the transportation vehicle can be more efficiently utilized.

A further object of the invention is to provide a palletized shipping container of a particular length and width that minimizes the amount of time per windshield for moving the container into or from a loading or unloading station.

These and other objects of the invention will be apparent to one skilled in the art from the description of a preferred embodiment of the container that follows when taken in conjunction with the drawings in which similar parts are designated sometime by the same reference numerals and in which:

FIG. 1 is a perspective view of the palletized shipping container with the top and the upper and lower front panels removed;

FIG. 2 is a front elevation of the shipping container;

FIG. 3 is a plan view of the top of the container;

FIG. 4 is a vertical cross section of the container taken along the line 4-4 of FIG. 2, with the top removed and with parts broken away; and

FIG. 5 is a fragmentary perspective view of the container at an angle other than that used for the view of FIG. 1.

The palletized container has a palletized base generally indicated at 10 comprising spaced parallel longitudinal skids 11, spacer blocks 12 secured on skids 11 at and intermediate their ends, and transverse boards 13 secured on blocks 12. Spaced parallel longitudinal boards 14 secured on boards 13 above skids 11 constitute a platform to provide a bottom for the container. Transverse boards 15 secured to the underside of boards 14 between boards 13. The foregoing components are secured together by nails or the like. The boards 13 and 15 are engaged by the forks of a lift truck for lifting and moving the container.

Boards 13 and 15 extend beyond outside boards 14 to provide side ledges. Likewise, the boards 14 are shorter than skids 11 so that end ledges are provided on the transverse boards 13 at the ends of the bottom 10 of the container.

The container has end panels generally indicated at 20, upper and lower front panels generally indicated at 21 and 22, respectively, and a rear panel generally indicated at 23. Each of the end panels 20 has vertical boards 26 and 27. The height of the upper front panel 21 is approximately equal to the height of the lower front panel 22 as seen in FIG. 4 to provide a container that has less than twice the height of the conventional container previously referred to. The upper front panel 21 has vertical boards 28 and 29 joined by wires 30 secured along the outside faces of boards 28 and 29 by staples 31. The lower front panel 22 has vertical boards 32 and 33 joined by wires 34 secured along the outside faces of boards 32 and 33 by staples 31. The rear panel 23 has vertical boards 36 and 37. Wires 38 are secured by staples 31 to the outside faces of boards 26 and 27 of panels 20 and to boards 36 and 37 of panel 23. The ends of wires 30 and 34 have loops 39.

The end panels 20 have cleats 40 secured by nails to the inside faces of the top ends of vertical boards 26 and 27, cleats 41 secured to the inside faces of the bottom ends of boards 26 and 27 and cleats 42 secured to the inside faces of boards 26 and 27 intermediate the ends of the latter. Likewise a top cleat 43, an intermediate cleat 44 and a bottom cleat 45 are secured to inside faces of boards 36 and 37 of panel 23. The cleats 40, 41, 42, 43, 44 and 45 are mitered at their ends. The panels 20 are mounted with bottom cleat 41 of each resting on an end ledge of the bottom 10, i.e., on boards 13, and panel 23 is mounted with bottom cleat 44 resting on the rear

ledge of bottom 10, i.e., on one end of each of boards 13 and 15.

A cleat 46 is secured to the inside faces of vertical boards 32 and 33 of panel 22 at their bottom ends and a cleat 47 is also secured on the inside face of panel 22 to the top ends of vertical boards 32 and 33. The bottom cleat 46 rests on the front ledge provided on the top surface of the front end of boards 13 and 15. The upper front panel 21 has a cleat 48 secured to the inside faces of vertical boards 28 and 29 at their top ends. The upper panel 21 also has a cleat 49 secured to the inside faces of vertical boards 28 and 29. The cleat 49 is parallel to but spaced above the bottom ends of boards 28 and 29.

When the upper and lower front panels 21 and 22 are in position to close that side of the container the cleats 41, cleat 44 and cleat 46 rest on the ledges of the bottom 10 and are in the same horizontal plane. With the lower front panel 22 in position its cleat 47 is in horizontal alignment with cleat 42 and cleat 45. The upper front panel 21 rests on the top edges of boards 32 and 33 of lower front panel 22 so that top cleat 48 of upper front panel 21 is in horizontal alignment with top cleats 40 and top cleat 43 of end panels 20 and rear panel 23, respectively.

Transverse boards 50 are secured on the ends of longitudinal boards 14 of bottom 10. The boards 50 extend beyond the outside boards 14 so that the ends of boards 50 are in vertical alignment with the ends of boards 13 and 15. A pair of transverse channel members 51 is secured on longitudinal boards 14 between transverse boards 50. The channel members 51 likewise extend beyond the outside longitudinal boards 14 so that the ends of the former are in alignment with boards 13 and 15. The particular positioning of channel members 51 is determined by the pattern of the windshield to be packed in the container. Each of the channel members has a stop member 52 in the rear portion of its groove. The stop member 52 is nailed to channel member 51.

As seen in FIG. 1 the container of the invention has a shelf generally indicated at 60 comprising parallel longitudinal boards 61 that are spaced apart. The shelf also includes transverse boards 62 secured on the ends of longitudinal boards 61. A pair of channel members 64, each having a stop member 65 nailed in the rear portion of its groove, is nailed to longitudinal boards 61 of shelf 60 between transverse boards 62. Like channel members 51, the channel members 64 are positioned between transverse boards 62 in a manner dependent upon the particular pattern of windshield to be packaged.

FIG. 1 shows shelf 60 in position with the longitudinal boards 61 of shelf 60 resting on cleat 42 of end panels 20 and cleat 45 of rear panel 23. The outside boards 61 also rest on top cleat 47 of lower front panel 22 when shelf 60 is normally in the position shown in FIG. 1, because it is placed there when panel 22 has been positioned as shown in FIG. 2. The ends of transverse boards 62 and channel members 64 are in the same vertical planes as the front edge of the front board 61 and the rear edge of rear outside board 61.

After the windshields have been loaded on the bottom 10, the lower panel 22 is placed in position and the loops 68 of lower wires 38 are secured to the loops 39 of wires 34 on lower front panel 22. The shelf 60 is placed in position on cleats 42, 45 and 47. After the windshields have been placed on shelf 60 the upper front panel 21 is placed on lower front panel 22 and the cleat 49 of upper front panel 21 abuts the top surface of flange 69 of each of channel members 64, thereby serving to hold down shelf 60. The loops 39 of wires 30 of upper front panel 21 are secured to the loops 68 of upper wires 38. The loops 39 are secured to loops 68 by a conventional tool.

A top generally indicated at 70 is placed on panels 20, 21 and 23. The top has transverse boards 71 that are parallel and spaced apart. The boards are secured at their under surfaces to longitudinal boards 72. The ends

of boards 72 are spaced from the ends of boards 71 and with the top 70 in position boards 72 abut the inside surfaces of cleats 43 and 48 of rear panel 23 and upper front panel 21, respectively. The ends of boards 72 are slightly spaced from cleats 40 of end panels 20. The boards 71 rest on the top of panels 20 and panels 21 and 23 and on cleats 40 and cleats 43 and 48. The end boards 71 have secured on their top surfaces guide boards 73. The guide boards 73 each have a corner removed so that a wire can be placed over each top corner of the container to provide a candy box type of wire tie to secure the top to the other components of the container.

When assembling the container the end panels 20 and rear panel 23 are secured in position upon the ledges of bottom 10 by nails (not shown) through vertical boards 26 and 37 and board 14 and into spacer blocks 12. Likewise when lower front panel 22 is placed in position after loading windshields on bottom 10 the panel 22 is preferably secured to bottom 10 by a nail (not shown) through vertical board 32 and intermediate transverse board 13 and into spacer block 12.

Various modifications of the container will be apparent from the foregoing description of a preferred embodiment which is merely illustrative. For example, instead of the channel members 51 and 64 in which multiple corrugated cardboards with slots in their top portions are secured and instead of the particular construction of the palletized bottom and the shelf, other constructions can be used. For example, the palletized bottom can have a construction as shown in U.S. Patent No. 2,743,010, granted on April 24, 1956, and the shelf can be similarly modified, e.g., by using a pair of spaced boards instead of the channel member.

The description of a specific packaging method for the windshields in conventional containers can be used to package them in the lower tier on the bottom or in the upper tier on the shelf 60. Instead of that type of arrangement for the corrugated materials for packaging, other packaging materials could be used, for example, those shown in the U.S. patent mentioned above.

The invention is not limited by the description of the preferred embodiment but only by the claims that follow.

I claim:

1. A shipping container for curved glass sheets comprising a palletized base, a platform secured on the base to provide a bottom for the container, end panels and a rear panel supported by the bottom and having top, bottom and intermediate horizontal cleats secured on the inside faces of each of said panels, a lower front panel supported by the bottom and having top and bottom horizontal cleats secured on its inside face, said top horizontal cleats of said lower front panel being in horizontal alignment at its top surface with the top surface of the intermediate cleats of the end panels and the rear panel, an upper front panel on the lower front panel and having a top horizontal cleat in alignment with the top cleats of the end panels and the rear panel, a shelf resting on and supported by said intermediate cleats and by said top cleat of the lower front panel, and a top supported by the top cleat on the upper front panel and by the top cleats on the end panels, the rear panel and the upper front panel said front margin of said top between said end panels being supported on said bottom only through said upper and lower front panels and said bottom and said shelf each including longitudinal boards, transverse boards secured on the ends of said longitudinal boards, a pair of transverse channel-shaped boards secured on said longitudinal boards between said first-mentioned transverse boards with the upper surface of each channel-shaped board having a groove and stop members secured in the rear portion of the grooves of each of said channel-shaped boards.

2. A shipping container for curved glass sheets comprising a palletized base, a platform secured on the base to provide a bottom for the container, end panels and a

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rear panel supported by the bottom and having top, bottom and intermediate horizontal cleats secured on the inside faces of each of said panels, a lower front panel supported by the bottom and having top and bottom horizontal cleats secured on its inside face, said top horizontal cleat of said lower front panel being in horizontal alignment at its top surface with the top surface of the intermediate cleats of the end panels and the rear panel, an upper front panel on the lower front panel and having a top horizontal cleat in alignment with the top cleats of the end panels and the rear panel, a shelf resting on and supported by said intermediate cleats and by said top cleat of the lower front panel, and a top supported by the top cleat on the upper front panel and by the top cleats on the end panels, the rear panel and the upper front panel, said front margin of said top between said end panels being supported on said bottom only through said upper and lower front panels and said upper front panel having secured on its inside face a horizontal cleat spaced above the lower end of the upper front panel and engaging a top surface portion of the shelf.

3. The shipping container of claim 2 wherein each of the cleats has a mitered end opposing a mitered end of the adjacent cleat.

4. The container of claim 3 and further including horizontal wires secured to the end panels and the rear panel, wires secured to the lower front panel and wires secured to the upper front panel at the outer faces, said wires secured to the end panels and the rear panel being secured to the wires of the upper and lower front panels.

5. The shipping container of claim 4 wherein said container has a height from the bottom surface of the palletized base to the top surface of the top that is less than twice the comparable height of a container having end and rear panels with heights equal to the height of the lower front panel of said container and with the top resting directly on the lower front panel,

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6. A shipping container for curved glass sheets comprising a palletized base, a platform secured on the base to provide a bottom for the container, and end panels and a rear panel supported by the bottom and each having horizontal cleats secured on the inside faces intermediate the top and bottom of the panels and spaced above the bottom, a lower front panel supported by the bottom and having a horizontal cleat secured on the inside face adjacent the top of the lower front panel, an upper front panel supported by the lower panel, a shelf resting on and supported horizontally by the cleats on the end panels and the rear panel and the cleat on the lower front panel, and a top supported by the rear panel, the end panels and the upper front panel, said front margin of said top between said end panels being supported on said bottom only through said upper and lower front panels and said upper front panel having secured on its inside face a horizontal cleat spaced above the lower end of the upper front panel and engaging a top surface portion of the shelf.

7. The shipping container of claim 6 wherein the height of the upper front panel is approximately the height of the lower front panel.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,064,845

November 20, 1962

William J. Maxwell

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 52, for "cleats" read -- cleat --; column 6, line 3, strike out -- and --.

Signed and sealed thid 4th day of February 1964.

(SEAL)
Attest:

ERNEST W. SWIDER

Attesting Officer

EDWIN L. REYNOLDS

Acting Commissioner of Patents