FIBERBOARD END STRUCTURES FOR SHIPPING BOXES

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The present invention relates to a container for shipping television cabinets or similar articles and the invention more specifically pertains to fiberboard members adapted to protect the base and top of a television cabinet within a shipping box.

It has been customary in the past in packing television cabinets or sets for shipment to provide a skid bolted or otherwise secured to the base of the television cabinet. The skid formed of wood has been so shaped as to fit within a fiberboard shipping box so as to prevent the legs of the television cabinet from pushing through the bottom of the box. The skid also serves to space the television cabinet from the sides of the box to thereby reduce the possibility of injury to the cabinet. Such skids when made of wood represent a costly item in packing and shipping television cabinets and similar articles.

An object of the present invention is to provide a base structure for a television cabinet formed entirely of fiberboard and so designed that the base forms a shallow receptacle for receiving the lower extremity of the television cabinet so that the base structure properly maintains the cabinet of the television set in a position spaced inwardly from the side walls of the fiberboard shipping box and to provide a base structure of fiberboard which will avoid penetration of the legs of the set through the bottom of the shipping box.

A further object of the invention is to provide fiberboard structures for the base and the top of a television cabinet or similar article adapted to serve as a cushion for any impact forces applied to the end corners of a shipping box and to distribute such forces through portions of the associated fiberboard structure to thereby avoid injury to the television cabinet.

Another object of the invention is to provide a fiberboard structure for use in the bottom of a fiberboard box to support a television cabinet so that the weight is initially supported by the side walls of the appliance intermediate the legs to thereby avoid concentration of the weight of the television cabinet on the legs during the packing and transit of the package.

Other objects and features of the invention will be more apparent to those skilled in the paper box art as the present disclosure proceeds and upon consideration of the accompanying drawings and the following detailed description wherein an exemplary embodiment of the invention is disclosed.

In the drawings:
Fig. 1 is an exploded perspective view showing fiberboard end structures exhibiting the invention in association with a television cabinet.
Fig. 2 is a sectional view of a fiberboard box showing the base structure and the top protective structure in section.
Fig. 3 is a similar sectional view taken at right angles to Fig. 2.
Fig. 4 is a plan view of the base structure with the shipping box shown in section.
Fig. 5 is an enlarged fragmentary perspective view of a portion of the fiberboard base structure.

A television set having one type of cabinet is diagrammatically illustrated in the drawings at 10. The television set includes a window 11 in the cabinet through which the larger end of the picture tube is viewed. The usual control knobs are represented at 12. The picture tube projects from the rear wall 14 of the television cabinet and a frusto-conical shaped protecting cover 16 (Fig. 3) is provided for preventing damage to the projecting portion of the picture tube. The cabinet including the controls and tube arrangement forms no part of the invention and is shown in the drawings for the purpose of illustrating the utility and structural arrangement of the base member and the top member for properly supporting and protecting a television set in a fiberboard box, such as shown at 17. The television cabinet is often provided with a leg at each of the corners and the front legs are indicated at 18 while the rear legs are shown at 21 and 22. These legs are usually formed integral with the side walls of the television cabinet and vary in shape but are provided for supporting the set.

The box 17 is of rectangular shape in cross section and formed of reinforced fiberboard of the usual type. The bottom of the box is shown at 23 in Figs. 2 and 3. This bottom wall is of relatively large cross sectional area and does not provide for sufficient strength to avoid penetration of the legs of the cabinet through the bottom panel. The present invention includes a base structure shown generally at 24 fabricated of fiberboard and adapted to be arranged in the bottom of the box 17 and rest on the bottom wall 23. This base is for the purpose of supporting the television cabinet 10 in such a position in the box 17 so as to prevent the legs of the television set from pushing through the bottom 23. The base 24 also properly spaces the sides of the television cabinet from the sides of the box 17.

The base structure includes a central fiberboard panel 26 provided with end flaps 27 and 28. The end flap 27 is scored along the line 31 so as to hinge to the position somewhat as illustrated in Fig. 1. The end flap 28 is similarly scored so that this flap may be arranged in a vertical position as shown in Fig. 2. A front flap 33 is integral with the central panel 26. This flap is scored along the line 33 so that the flap 32 may be arranged in a vertical position as shown in Fig. 3. A rear flap 34 is also integral with the central panel 26. The fiberboard stock is so scored that the flap 34 may be arranged in a vertical position as shown in Fig. 2. It will be observed that when the flaps carried by the central panel 26 are in the vertical positions the base structure 24 is of such shape that it fits snugly within the bottom of the box 17.

A pad 36 is provided at one corner of the panel 26 and this pad includes a series of relatively short reinforced fiberboard strips or laminations arranged in positions as shown in Figs. 1, 3 and 5. The reinforcing corrugations of the laminations forming the pad 36 extend in vertical directions. The laminations forming the pad 36 are adhesively joined to each other and bonded to the upper surface of the panel 26. The pad 36 is adapted to lie under the front leg structure 18 of the television cabinet. The base structure as hereinafter described is such as to support the television set with the leg 18 above the top level of the laminations forming the pad 36. Thus under normal conditions this pad 36 is not engaged by the leg 18 but is provided for the purpose of preventing the leg structure from penetrating through the bottom 23 of the box in the event that the weight supporting the television cabinet shown hereinafter described should become distorted to lower the television cabinet in the box 17. A similar series of short vertically arranged strips or laminations are provided under the rear leg 22 to provide a pad 37 as shown in Figs. 1 and 2. A pad 38 formed of short length ver-
tically disposed fiberboard laminations is provided under the rear leg 21. A similar pad 39 formed of fiberboard laminations disposed in vertical planes is provided under the front leg 19. The laminations forming these pads at the corners of the base are also bonded to each other to the upper face of the panel 26.

The end flap 28 carries a plurality of fiberboard laminations 41. These laminations are adhesively joined to each other and adhesively attached to the inner face of the flap 28. The laminations 41 are generally of rectangular shape and are of such height and as to provide a bottom edge 43 of these projections which is adapted to engage the panel 26 when the flap 28 is in a vertical position as shown in Fig. 2. A further series of rectangular shaped laminations 47 are adhesively joined to each other to the inner face of the laminations 41. These laminations 47 provide a shoulder 49 along the upper edges thereof. This shoulder 49 engages the upper edge of the television set as to engage the bottom edge 51 (Fig. 3) of the side wall 52 of the television cabinet between the legs 18 and 22. This portion of the television cabinet rests on the shoulder 49 and the vertically disposed laminations 47 carry the weight of the television set. It will be noted that the laminations 41 which extend above the shoulder 49 provide a lateral abutment (Fig. 2) for spacing the side wall 52 from the side of the shipping box 17.

A similar series of laminations 56 are carried by the front flap 32. These laminations are vertically disposed in the position shown in Fig. 3 and are adhesively joined to each other and to the inner face of the flap 32. The laminations 56 are of such height that the lower edges 57 engage and lie on the pads 36 and 39. The central portion of the laminations 56 project below the edges 57 and the lower edges 58 of these projections are aligned and adapted to engage the upper face of the panel 26. An additional group of vertically disposed rectangular shaped laminations 59 are adhesively joined to the innermost laminations 56 and to each other. The lower edges 61 of the laminations 59 are aligned with the lower edges 58 of the laminations 56. A shoulder 62 is thereby provided along the top of the laminations 59. This shoulder 62 is provided for the purpose of engaging a lower edge 63 (Fig. 1) provided between the legs 18 and 19 at the front of the television cabinet. The front wall 64 of the television cabinet is properly spaced from the front wall of the box 17 by the laminations 56 above the shoulder 62 and the knobs 12 do not engage the front wall of the box. The weight of the front portion of the television cabinet is carried by the shoulder 62 and is engaged on the vertical laminations 59. Some of the weight is transmitted to the laminations 56 which is in turn distributed to the pads 36 and 39.

The end flap 27 carries a plurality of laminations 66 which are similar in shape to the laminations 41. The laminations 66 are adhesively joined to each other and to the inner face of the flap 27. Lower edge portions of the laminations 66 are aligned and engage the pads 39 and 38 when the flap 27 is in an erect position, as shown in Fig. 2. The central portion of the laminations 66 along the lower edge carries projections (not shown) similar to those indicated at 44 (Fig. 5). The lower edges of these projections engage the panel 26. Additional vertically disposed laminations 68 are provided on the laminations 66, as shown in Fig. 2. These laminations are aligned with the lower edges of the central projections on the laminations 66 and engage the panel 26. A shoulder 69 is thus provided for engaging the bottom edge 71 (Fig. 1) of the side wall 72 of the television cabinet. The laminations 66 above the shoulder 69 also engage the side wall 72 of the television cabinet and prevent shifting of the television set to the right in Fig. 2. The weight of this side of the television set is carried by the shoulder 69 and transmitted to the panel 26 and a portion of the weight is distributed only on the laminations 66 and the pads 38 and 39.

The rear flap 34 of the base structure carries laminations 74 which are greater in number so as to provide more space between the rear wall of the shipping box 17 and the rear face 14 of the television cabinet. This additional space is provided for the protective cover 16 associated in rear of the picture tube. The laminations 74 are adhesively joined to each other and to the inner face of the flap 34. The lower edge portions 76 (Fig. 1) of the laminations 74 are adapted to engage the pads 37 and 38 when the flap 34 is in the vertical position shown in Fig. 3. The central portion of the laminations 74 extend downwardly and are adapted to engage the panel 26, as shown in Fig. 3. A plurality of additional vertically disposed laminations 78 are adhesively joined to each other and to the laminations 74. The laminations 78 terminate at their lower edges 79 (Fig. 1) in alignment with corresponding portions of the laminations 41 and 51. A shoulder 81 which is adapted to be engaged by a lower edge 82 of the rear wall 14 of the television cabinet between the legs 21 and 22. The shoulder 82 is of such height as to support the legs 21 and 22 slightly above the pads 37 and 38. Thus the load of the rear portion of the television cabinet is imposed on the laminations 78 and part of the load is thereby transmitted to the panel 26. A portion of the weight is transmitted through the laminations 74 onto the pads 37 and 38. The laminations 74 above the shoulder 81 engage the rear wall 14 of the television set and properly space the cabinet 10 from the rear wall of the shipping box 17.

It will be observed that the laminations 66 extend throughout the length of the flap 32. The laminations 74 extend throughout the length of the flap 34. The laminations 41 terminate short of the ends of the flap 28 as shown in Fig. 1. An end shoulder 85 is thereby provided which is engaged by the innermost laminations 56 when the flaps 28 and 32 are in vertical positions as shown in Fig. 4. A similar shoulder is provided at 90 where the innermost laminations 74 engages the other ends of the laminations 41 when the flap 34 is in the vertical position. The laminations 66 also terminate short of the ends of the flaps 27 to provide shoulders 95 and 98. Thus when the shoulders 95 and 98 of the innermost laminations 56 engages the shoulder 95 and the innermost laminations 74 engages the other shoulder 98. Thus any impact forces applied to a corner of the shipping box will be transmitted from a corner area of the base structure along the juxtaposed laminations to spread such forces along the sides of the television cabinet. Accordingly, the laminations carried by the flaps of the base member provide a cushion structure for absorbing forces which would otherwise be transmitted directly to the television cabinet. The abutting relationship of the ends of the vertically disposed laminations around the lower end of the television cabinet provides support for movement for spreading impact forces which may be developed when the shipping box is accidentally dropped or improperly handled in transit.

A fiberboard assembly is provided for the top of the television cabinet as shown in Fig. 4. This member includes a central fiberboard panel 86 of rectangular shape (Fig. 1). A front flap 87 carries a plurality of laminations 88 adhesively joined to each other and to the flap 87. These laminations as shown in Fig. 3 space the top front wall 64 of the television cabinet from the front wall of the shipping box 17. An end flap 89 carries a plurality of laminations 91 as shown in Fig. 2. The end of the end flap 93 carries a plurality of laminations 94 for spacing the side wall 52 from the side of the box 17. The laminations 96 carried by the rear flap 99 are of
a greater number and correspond to the thickness of the laminations 74. Thus the top member 84 maintains the upper portion of the television cabinet in a spaced relation with respect to the side and end walls of the shipping box 15, corresponding to the spacing provided by the base structure 24. The top member carries fiberboard strips 97 for protecting the top of the television set. It will be noted that the laminations 85 extend throughout the length of the front flap 87. The laminations 96 also extend throughout the length of the rear flap 89. The laminations 94 carried by the side flap 93 and the laminations 91 carried by the other side flap 89 terminate short of the ends of these flaps to provide shoulders 100 which are engaged by the innermost faces of the laminations 88 and 96. This abutting relationship of the laminations carried by the top member also serve to transmit any impact force lengthwise along the laminations to thereby provide a cushion structure at the top of the television cabinet and at the same time to distribute the impact forces along the structure to avoid injury to the television cabinet. The laminations carried by the depending flaps of the top member thereby serve a purpose similar to the laminations carried by the flaps of the base member.

In packing an electrical appliance the base structure 24 is first introduced into the shipping box 17 by arranging the flaps thereof somewhat in the position as illustrated in Fig. 1. The base structure is then moved downwardly to rest on the bottom wall 23 of the box. Thereafter the television cabinet is lowered into the box 17 so that the surfaces between the legs rest on the shoulders 49, 62, 69 and 81. The lower ends of the legs are thereby spaced above the safety pads as shown in Figs. 2 and 3. In cases of distortion of the fiberboard supports the legs of the television cabinet move downwardly to engage the safety pads 36, 37, 38 and 39, but the Curve of the bottom of the shipping carton is avoided since further downward movement of the television set relative to the box is opposed by the vertically disposed laminations of the base structure 24. After the television set is in position within the box 17 the top structure 84 may be arranged in position over the television cabinet as shown in Figs. 2 and 3.

While the invention has been described with reference to specific structural features it will be appreciated that changes may be made in the details as well as the general organization. Such changes and others may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

What I claim and desire to secure by Letters Patent is:

1. A fiberboard base structure for a shipping box comprising, a rectangular shaped panel, a pad carried by an upper surface of said panel at each of the four corners thereof, each of said pads being formed of a plurality of vertically disposed reinforced fiberboard strips adhesively joined to each other and to an upper face of the panel, a plurality of flaps one carried by each side edge of said panel adapted to be arranged in positions at right angles to the panel, a plurality of juxtaposed fiberboard laminations carried by each flap adhesively joined to each other and to an inner face of the associated flap, aligned lower edges at the ends of the laminations for resting on upper surfaces of said pads when the flaps are in positions at right angles to the panel, projections on said laminations extending below said lower edges for engaging an upper face of said panel between said pads when the flaps are positioned at right angles to the panel, and means providing a shoulder on an intermediate portion of said laminations engaged by the top edges thereof and above the top surfaces of said pads.

2. A fiberboard base structure for a shipping box comprising, a rectangular shaped fiberboard panel, a pad carried by an upper surface of said panel at each corner thereof, said pads being formed of a plurality of vertically disposed reinforced fiberboard strips adhesively joined to each other and to an upper face of said panel, a flap carried by each side edge of said panel adapted to be arranged in a position at right angles to the panel, a plurality of juxtaposed fiberboard laminations carried by each flap adhesively joined to each other and to an inner face of the associated flap, aligned lower edges at the ends of the laminations for resting on upper surfaces of said pads when the flaps are in positions at right angles to the panel, projections on said laminations extending below said lower edges for engaging an upper face of said panel between said pads when the flaps are positioned at right angles to the panel, and means providing a shoulder on an intermediate portion of said laminations engaged by the top edges thereof and above the top surfaces of said pads.

3. A fiberboard base structure for a shipping box comprising, rectangular shaped fiberboard panel, a pad carried by an upper surface of said panel at each corner thereof, a plurality of flaps one carried by each side edge of said panel adapted to be arranged in positions at right angles to the panel, a plurality of fiberboard laminations carried by each flap adhesively joined to each other and to the inner face of the associated flap, aligned lower edges at end portions of said laminations engaging top surfaces of said pads when the flaps are in positions at right angles to the panel, and means providing a shoulder on an intermediate portion of said laminations engaged by the top edges thereof and above the top surfaces of said pads.

4. A fiberboard base structure for a shipping box comprising, a rectangular shaped fiberboard panel, a pad carried by an upper surface of said panel at each corner thereof, a plurality of flaps one carried by each side edge of said panel adapted to be arranged in positions at right angles to the panel, a plurality of fiberboard laminations carried by each flap adhesively joined to each other and to the inner face of the associated flap, aligned lower edges at end portions of said laminations engaging top surfaces of said pads when the flaps are in positions at right angles to the panel, and means providing a shoulder on an intermediate portion of said laminations engaged by the top edges thereof and above the top surfaces of said pads.

5. A fiberboard base structure for a shipping box comprising, a rectangular shaped fiberboard panel, a pad carried by an upper surface of said panel at each corner thereof, said pads being formed of a plurality of vertically disposed reinforced fiberboard strips adhesively joined to each other and to an inner face of the associated flap, aligned lower edges at the ends of the laminations for resting on upper surfaces of said pads when the flaps are in positions at right angles to the panel, and means providing a shoulder on an intermediate portion of said laminations engaged by the top edges thereof and above the top surfaces of said pads.

6. A fiberboard base structure for a shipping box comprising, a rectangular shaped fiberboard panel, a flap carried by each edge of the panel adapted to be arranged in a plane at right angles to the panel, each of the four flaps having a length coextensive with an associated edge of the panel, a plurality of fiberboard laminations carried by each flap adhesively joined to each other in interfacial
relationship and adhesively joined to an inner face of the associated flap, aligned edge portions on each group of laminations for engaging a face of the panel when the flaps are in positions at right angles to the panel, aligned ends on the laminations carried by a first and an opposite second of said flaps coextensive with the length of the flaps forming abutments for engaging inner surfaces of a third and a fourth of said flaps, and aligned end surfaces on the laminations carried by third and the fourth flaps forming abutments for engaging the innermost lamination of the first and second flaps.

7. A fiberboard tray structure for encasing an end of an article within a shipping box comprising, a rectangular shaped fiberboard panel, a first elongated rectangular shaped flap integral with one edge of the panel having a length coextensive with the panel, a first group of fiberboard laminations carried by said flap adhesively joined to each other in interfacial relationship and adhesively joined to an inner face of said flap, ends of said laminations being flush with the ends of the flap forming abutment surfaces, a second elongated rectangular shaped flap integral with an opposite edge of the panel having a length coextensive with the panel, a second group of fiberboard laminations carried by the second flap adhesively joined to each other in interfacial relationship and adhesively joined to an inner face of the second flap, ends of the second laminations being flush with ends of the second flap forming abutment surfaces a third elongated rectangular shaped flap integral with an edge of the panel having a length coextensive with the panel, a third group of fiberboard laminations carried by the third flap adhesively joined to each other in interfacial relationship and adhesively joined to an inner face of the third flap, end surfaces on the third group of laminations forming abutment surfaces each spaced from an end of the third flap a distance corresponding to the thickness of the first and second group of laminations, a fourth elongated rectangular shaped flap carried by an edge of the panel having a length coextensive with the panel, a fourth group of fiberboard laminations carried by the fourth flap adhesively joined to each other in interfacial relationship and adhesively joined to an inner face of the fourth flap, aligned ends on the fourth group of laminations forming abutment surfaces each spaced from an end of the fourth flap a distance corresponding to the thickness of the first and second group of laminations, all of said flaps being adapted to be arranged in planes at right angles to the panels to form a tray with the abutment surfaces of the first and second groups of laminations engaging the inner faces of the third and fourth flaps and with the abutment surfaces of the third and fourth group of laminations engaging an inner face of an innermost lamination of the first and second groups of laminations.

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