Nov. 22, 1955 P. WASYLUKA 2,724,495

SHIPPING CONTAINER FOR FRAGILE ARTICLES

Filed Oct. 5, 1954 3 Sheets-Sheet 1

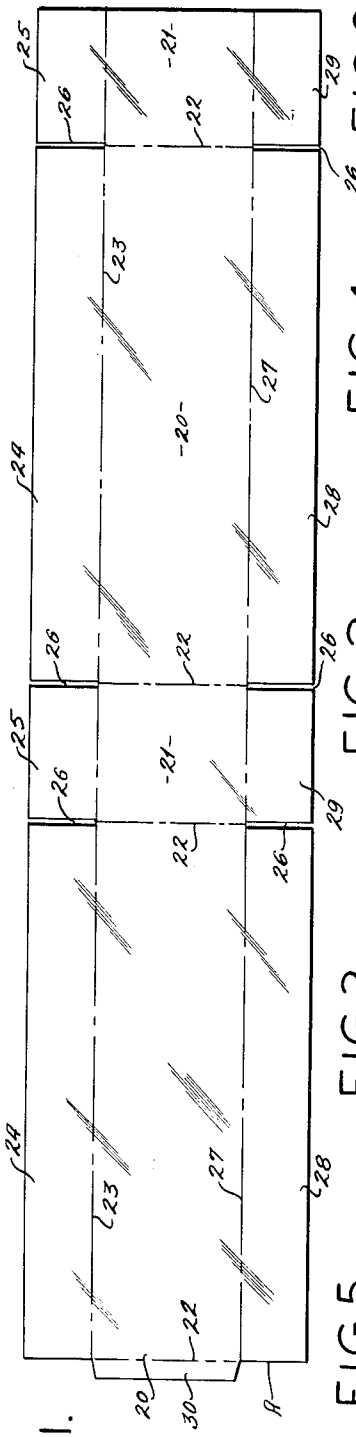


FIG. 1.

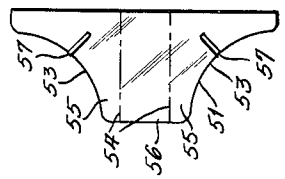


FIG. 6.

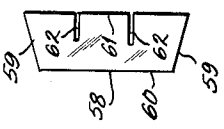


FIG. 8.

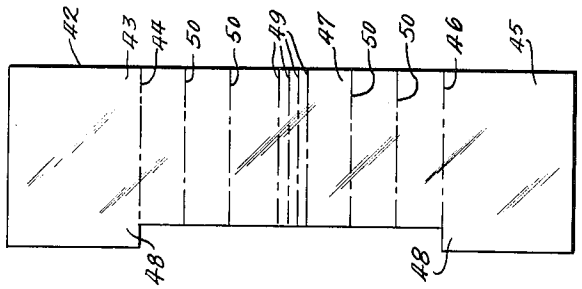


FIG. 4.

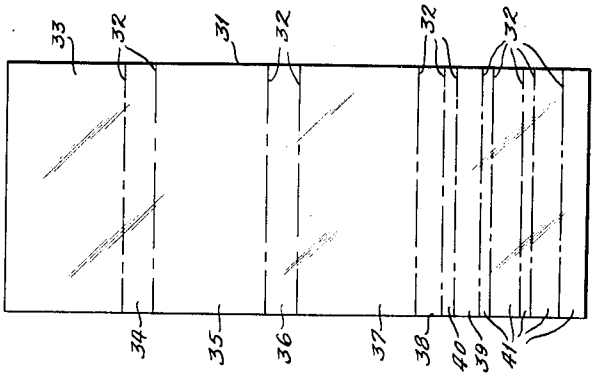


FIG. 2.

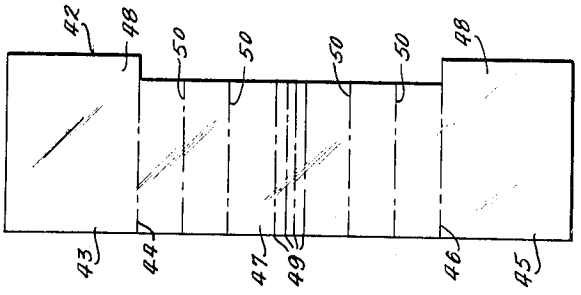


FIG. 3.

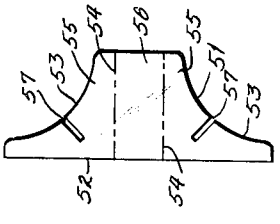


FIG. 5.

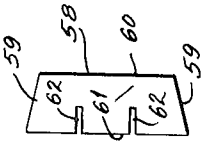


FIG. 7.

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Nov. 22, 1955 P. WASYLUKA 2,724,495

SHIPPING CONTAINER FOR FRAGILE ARTICLES

Filed Oct. 5, 1954 3 Sheets-Sheet 2

FIG.9.

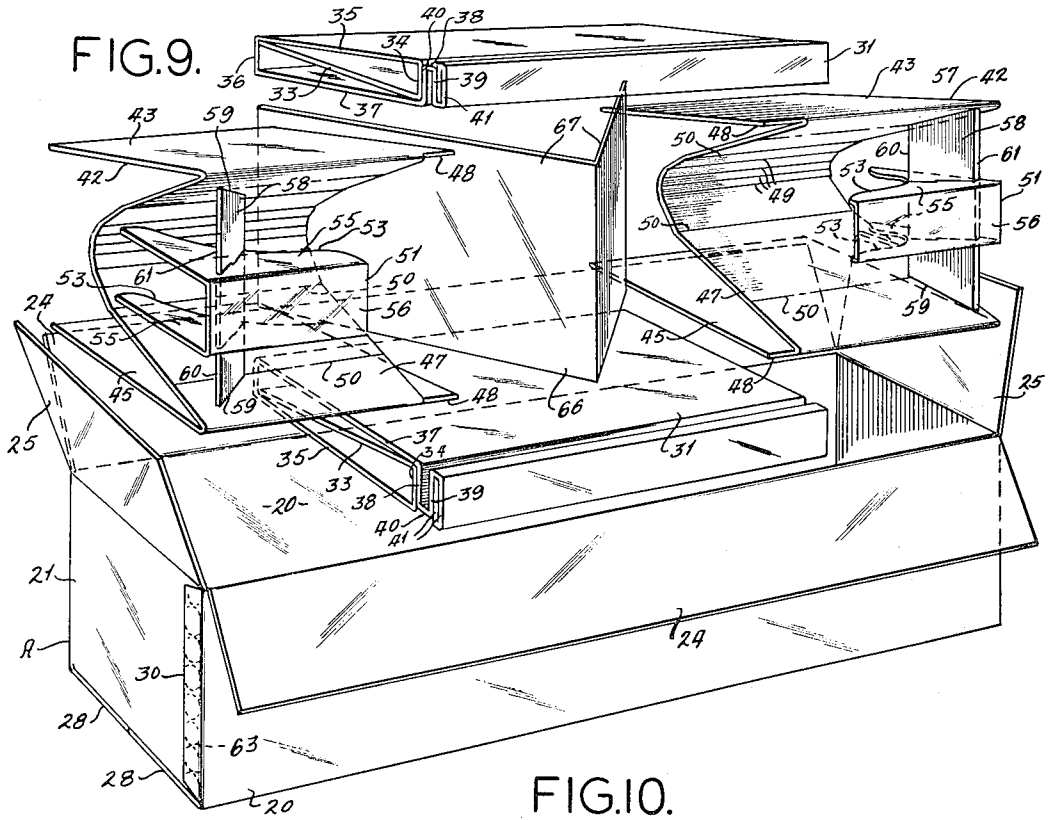


FIG.10.

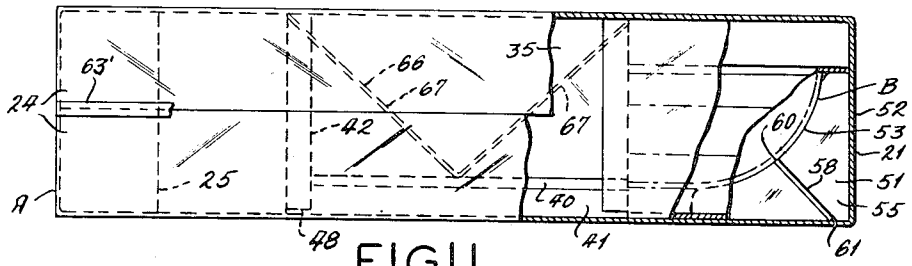
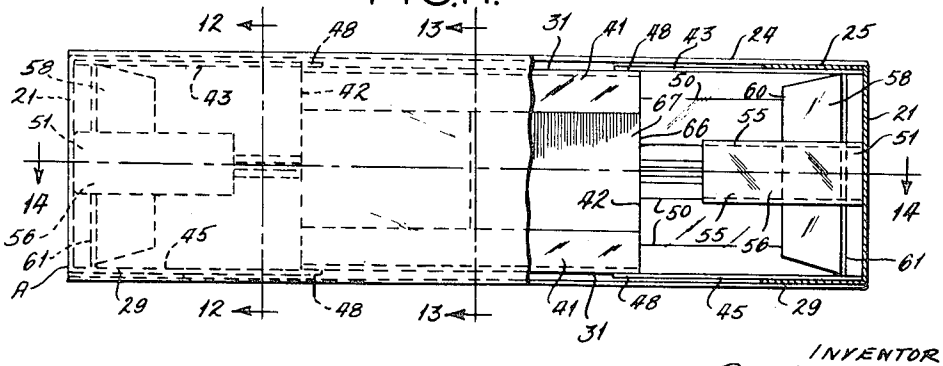


FIG.11.



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Nov. 22, 1955 P. WASYLUKA 2,724,495

SHIPPING CONTAINER FOR FRAGILE ARTICLES

Filed Oct. 5, 1954 3 Sheets-Sheet 3

FIG.12.

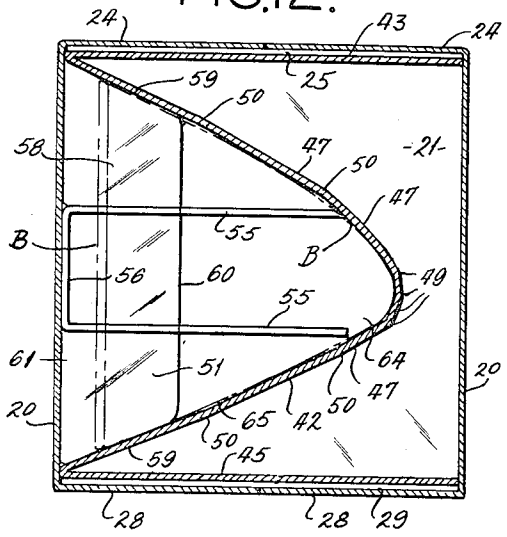


FIG.13.

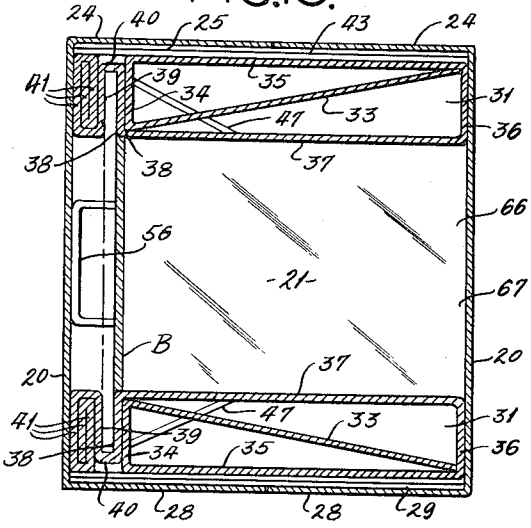
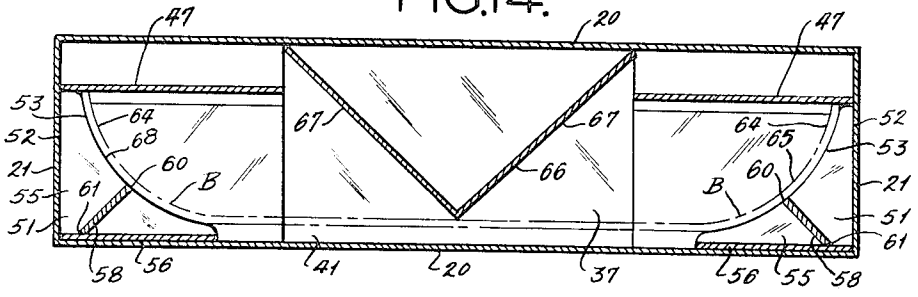


FIG.14.



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2,724,495

SHIPPING CONTAINER FOR FRAGILE ARTICLES

Paul Wasyluka, St. Louis, Mo., assignor to Gaylord Container Corporation, St. Louis, Mo., a corporation of Maryland

Application October 5, 1954, Serial No. 460,303

11 Claims. (Cl. 206—46)

This invention appertains to packaging for fragile articles, such as deeply curved sheets of glass. More particularly it refers to a container and interior packing therefor of the type made of solid fibreboard, corrugated fibreboard or other suitable material.

Prior to the present time, the great majority of frangible sheets, such as automobile windshields, were relatively flat in shape, or at the most, only slightly curved or bent in configuration. With such sheets it was a comparatively simple matter to package them for shipping by merely completely isolating the sheet from the side walls of the exterior container. Since the sheets were essentially in a single plane, there was little or no tendency for bending or flexing when subjected to end-to-end or lengthwise impact. This was due to the fact that the end-to-end impact was readily transmitted through the sheet from one end to the other with little or no tendency to flex or bend the frangible article. With substantially co-planar glass or similar articles, it is possible to provide interior packing which firmly grips the end extremities of the glass in isolated relation from the adjacent portions of the exterior container. An example of a container adapted for fragile, relatively slightly curved sheets lying substantially in a single plane is illustrated in Patent No. 2,665,804, issued to M. C. Koester on January 12, 1954.

With the advent of modified designs for automotive vehicles requiring deeply curved windshields, new packaging problems occurred. The deeply bent glass windshields have substantial portions, usually the ends, which are not only positioned outside the plane of the central portion of the glass sheet, but are sometimes even disposed in substantially normal or even right angular relation to the remaining, central portions. Many attempts have been made to package the deeply curved, fragile sheets employing theretofore known means of maintaining the sheet within an exterior container, for example, by engaging the end edges of the sheet to prevent movement within the container as in the Koester patent. The resulting breakage soon made it apparent that an entirely new method for packaging the deeply curved sheets must be employed, due to the extreme likelihood of the glass or other fragile material flexing or bending when subjected to end-to-end or lengthwise impact. It is therefore an object of this invention to provide a container having interior packing adapted to support a deeply curved, frangible sheet in completely isolated relation from the sides of the exterior container and in which the end edges of the sheet are generally free to move longitudinally within the container.

A further problem confronting packagers of the relatively new, deeply curved glass sheets was that of providing a means for floatably maintaining the contents within the container and at the same time providing means for gradually and firmly decelerating the movement of the contents against transverse or lateral impact. It is, therefore, another object of this invention to provide a container having a cradle adapted to provide a variable amount of support for the end extremities of the frangible contents, the amount and firmness of support depending

upon the magnitude and severity of the transverse or lateral impact.

A still further object is to provide a container having central members to engage the upper and lower central portions of the article to completely isolate these portions from the exterior container walls.

Still another object is to provide a container which has a rigid interior member adapted to fit in slidable engagement against the curved portion of a deeply curved frangible sheet to translate end-to-end impact and movement within the container into lateral and transverse movement.

A still further object is to provide a container of the type described wherein a minimum number of interior pieces are required.

These and other objects will be apparent to those skilled in the art upon a full and complete understanding of the construction and operation of the device.

The invention consists in the parts, arrangements and combinations of parts hereinafter described and claimed. The accompanying drawings from a part of this specification and like numerals and symbols therein appearing refer to like parts wherever they occur.

Fig. 1 is a plan view of a blank of an exterior container which may be employed in an embodiment of the invention;

Fig. 2 is a plan view of a blank of a central supporting pad which may be used in an embodiment of the invention;

Figs. 3 and 4 are plan views of blanks of cradle members to be employed with the container shown in Fig. 1;

Figs. 5 and 6 are plan views of die cut corner retaining members adapted for holding the contents in place;

Figs. 7 and 8 are plan views of die cut blanks adapted to engage into the corner retaining members illustrated in Fig. 6;

Fig. 9 is an exploded view of a preferred form of the container;

Fig. 10 is a top view of an assembled container shown with the curved, frangible sheet in position and with the cover member partially removed to expose the contents;

Fig. 11 is a side elevation of a completely assembled container shown with the side partially removed to illustrate the contents;

Fig. 12 is a vertical view through section 12—12 of Fig. 11;

Fig. 13 is a vertical view through section 13—13 of Fig. 11; and

Fig. 14 is a horizontal view through section 14—14 of Fig. 11.

A particular embodiment of an exterior container or carton A is illustrated in blank form in Fig. 1. While any desired type of exterior container may be employed, the embodiment illustrated is what is commonly known in the industry as a regular slotted carton having side walls 20 and end walls 21 connected along corner defining scores 22. A top score 23 defines the inner margin of foldably connected side top flaps 24 and end top flaps 25. Flap slots 26 positioned in alignment with adjacent corner defining scores 22 define the end edges of the top flaps 24 and 25. In a similar manner, a bottom score 27 defines the inner margin of bottom side flaps 28 and bottom end flaps 29. Flap slots 26 also define the end edges of the bottom flaps 28 and 29. In the embodiment of the container illustrated, a sealing flap 30 is foldably connected to the end of one of the side walls 20 along an adjacent corner defining score 22.

Fig. 2 illustrates, in blank form, one of the two center supporting pads 31 employed in the embodiment of the invention described. The pad 31 is essentially rectangular in outline, however, the configuration thereof may be varied if desired. A plurality of transverse scores 32 define an inclined panel 33, an inner vertical panel 34,

an outer panel 35, a rear panel 36 and an inner panel 37. The transverse scores 32, in addition, define back and front article engaging panels 38 and 39 respectively which are separated by a bottom article engaging panel 40. A series of front cushioning panels 41 are also foldably connected along transverse scores 32. The function and relationship of the various panels defined by the transverse scores 32 will be described fully later in the specification.

End cradle members 42 are shown in blank form in Figs. 3 and 4. They are substantially identical in appearance, being complementary duplicates. Each cradle member 42 is provided with a top member 43 which is partially defined by a top cradle score 44, which extends transversely of the blank 42. In the embodiment illustrated, the distance between the top cradle score 44 and the opposing free side edge of the top member 43 is preferably substantially equal to the interior width of the exterior container A. A similar bottom member 45 is defined in part by a bottom cradle score 46. Similarly, the distance between the bottom cradle score 46 and the opposing free edge of the bottom edge 45 is preferably substantially equal to the interior width of the container A. A middle cradle member 47 is provided intermediate the top and bottom members 43 and 45 respectively. The middle member 47 is preferably rectangular in outline and substantially narrower than the top and bottom members 43 and 45, thereby defining overhanging side portions 48 on members 43 and 45. The middle cradle member 47 is, in the embodiment described, provided with a plurality of middle scores 49 extending transversely of the middle cradle member 47. In addition, auxiliary scores 50 are positioned in intermediate, spaced, parallel relation between the top and bottom cradle scores 44 and 46 and the middle scores 49. The location and number of the scores 49 and 50 may vary within the limits of the invention, the variation being dependent upon the configuration of the article carried.

Right and left handed duplicate die cut corner pads 51 are shown in Figs. 5 and 6 and are provided with a straight side edge 52 and curved edges 53. A spaced parallel pair of corner pad scores 54 define end panels 55 and an intermediate panel 56. Each end panel 55 is provided with an end panel slot 57 extending inwardly at a convenient angle, depending upon the specific curvature of the end portion 64 of the windshield, for example, about 45° to the straight side edge 52 of the pads 51.

As illustrated in Figs. 7 and 8, right and left handed corner pad reinforcements 58 are provided with inclined end edges 59 and straight inner and outer side edges 60 and 61 respectively. The outer side edges 61 are provided with a pair of spaced corner pad receiving slots 62 spaced apart a distance substantially equal to the distance between the corner pad scores 54.

In order to assemble the package for use, it is desirable to erect the exterior container A. One method is to fold the right handed end wall 21, shown in the blank in Fig. 1, upwardly and inwardly about its adjacent corner defining score 22 into flatwise relation with its adjacent side wall 20. The side wall at the left of the blank is then folded upwardly and inwardly about its adjacent corner defining score 22 into flatwise contacting relation with the adjacent end wall and the exposed portion of the adjacent side wall 20. In this position, the sealing flap 30 will be in flatwise contacting relation with the free edge margin of the previously folded and positioned end wall 21. The sealing flap 30 is then secured to the adjacent end wall 21 by means of stitches 63, glue or other suitable securing means. The container A may then be erected so that the side and end walls 20 and 21 are positioned in rectangular, tubular relation with respect to each other. The bottom end flaps 29 are then folded inwardly about the adjacent portion of the bottom score 27 into substantially right angular relationship with their adjacent end walls 21. Next, the bottom side flaps are similarly folded inwardly about the adjacent portions of the bottom score 27 into flatwise relationship with the previously positioned bottom end flaps 29. The bottom side flaps may be permanently secured into position by adhesive spread on the bottom face of the bottom end flaps 29, stitches 63 or gummed tape 63', or other securing means may be employed if desired. The exterior container A is now ready to receive the fragile, deeply curved sheet.

The end cradle members are made ready to be inserted into the container by folding the top and bottom members 43 and 45 respectively backwardly about their adjacent top and bottom cradle scores 44 and 46 into substantially right angular relation with the middle cradle member 47. Next, the scores 49 and the auxiliary scores 50 are broken so as to permit the middle cradle member 47 to assume a gradually curved configuration as shown best in Figs. 9 and 12. The exact configuration of the middle cradle member 47 is unimportant at this point, since as will be apparent from a later description, the cradle member will automatically assume the proper curved outline of the article carried. Each end cradle member is then placed into the previously erected exterior carton A with the bottom member panel 45 in flatwise contacting relation against the previously infolded bottom end flap 29 as shown, for example, in Fig. 12. In the embodiment illustrated, the overhanging side portions 48 and the bottom member 45 extend inwardly toward the center of the container while the opposing side edge of the bottom member is in abutting, contacting relation with the inner face of the adjacent container end wall. The free end edge of the bottom member 45 and the opposing margin defined by the bottom cradle score 46 are in firm contacting relation with the inner faces of the adjacent side walls 20. In this manner, the bottom member 45 is firmly maintained in position in the exterior container. To facilitate further assembly of the interior components of the container, the top member 43 of each end cradle member 42 is temporarily folded outside the container walls thereby exposing the interior face of the middle cradle member 47 which generally faces the front wall of the exterior container A.

Next, the central supporting pads 31 are erected by folding the components thereof about the transverse scores 32 to provide a supporting pad as illustrated best in Fig. 13. There are two central supporting pads, one adapted to fit into the bottom portion of the container and another adapted to fit into the top of the container. Both the top and bottom pads are identical except they are complementary to each other, i. e., the bottom pad 31 is adapted to receive the lower edge of the contents, while the top pad 31 is adapted to receive the upper edge of the contents. The inclined panel 33 is adapted to provide additional strength and rigidity to the inner and outer panels 35 and 37 and to prevent accidental movement of the contents toward the rear of the container. As will be apparent from later portions of the descriptions, the back and front article engaging panels 38 and 39 are folded about their adjacent transverse scores 32 into vertical article receiving relation. A plurality of front cushioning panels 41, vertically disposed and in contacting relation to the inner face of the adjacent side wall 20 of the container act to prevent accidental movement of the contents toward the front of the container.

The bottom central supporting pad 31 is inserted into the container with the front portion thereof defined by the front cushioning panels 41 being positioned adjacent the interior face of the front side wall 20 of the container as illustrated in Fig. 9. The end margins of the bottom central supporting pad 31 are dimensioned to extend over the overhanging side portions 48 of each of the end cradle members 42 so as to firmly retain them in position within the exterior container. As illustrated in the embodiment, it is desired that the length of the central supporting pad 31 will be such that the

end edges thereof will engage the adjacent side edges of the previously formed middle cradle member **47** thereby preventing accidental, horizontal movement of the bottom central supporting pad **31**. The package is now ready to receive a deeply curved, frangible article such as a glass windshield B or the like. The curved windshield B is inserted into the container so that the central portion of its lower front and back surfaces are received between the back and front article engaging panels **38** and **39**. The curved windshield will be further lowered into the container until the central portion of its lower edge is in contact with the bottom article engaging panel **40**. In the particular embodiment of the invention illustrated, the central portion of the windshield is relatively straight so that the distance between the back and front article engaging panels **38** and **39** is substantially equal to the thickness of the windshield B. However, in modified, curved, frangible sheets wherein the central portions are more deeply curved, it may be necessary to vary the width between the back and front article engaging panels **38** and **39** to accommodate the central portion of the article. As illustrated in Fig. 13, the central portion of the bottom edge of the windshield B is maintained in spaced relation from the bottom of the container.

The particular embodiment of the invention illustrated is designed for a deeply curved windshield having end portions **64** terminating in substantially right angular relation to the center portion of the windshield, the end portions decreasing gradually in width to provide a curved, tapering configuration as illustrated in Fig. 12. The lower edge **65** of the windshield will be received in contacting relation with the adjacent lower scored portion of the middle cradle member **47**. At this particular stage of the loading of the container, the middle cradle member **47** will provide little or no support for the end portions **64** of the curved windshield B.

The corner retaining members **51** are erected by folding the end panels **55** upwardly about the corner pad scores **54** into substantially right angular relation with the intermediate panel **56** In this position, the end panel slots **57** will be disposed in spaced parallel relation with each other. The corner pad reinforcement **58** is then inserted into the previously erected die cut corner pad **51** by guiding the corner pad slots **62** into the end panel slots **57**. The erected corner retaining member will appear as best illustrated in Fig. 9. The straight side edge **52** will be, in the embodiment described, folded to form substantially a right angle with respect to the intermediate panel **56**. The curved edges **53**, now disposed in spaced parallel relation to each other, are preferably the precise curvature of the adjacent curved portions of the curved windshield B when the corner member is inserted in place. The corner member is inserted into the container so that the lower inclined end edge of the corner pad reinforcement **58** is in normal, contacting, abutting relationship with the lower portion of the middle cradle member **47**. The curved edges **53** are in substantially normal contacting, abutting relation with the curved end portions of the windshield B and the intermediate panel **56** and the adjacent straight side edges **52** are in firm contacting relation with the adjacent interior faces of the corner of the exterior container A. The corner member is rigidly and firmly disposed within the container, and in firm contacting relation against the curved windshield member.

If desired, a reinforcing center rib **66** comprising a pair of foldably connected side flap members **67** may be placed onto the inner panel **37** of the bottom central supporting pad **31** as best shown in Fig. 14. The purpose of the center rib **66** is to provide a reinforcing support for the upper central supporting pad **31**, therefore, it is desirable that the width of the side flap members **67** be sufficient to engage the inner panel **37** of the upper, central supporting pad **31** when placed into the container, as later described, to maintain it in substantially horizontal, parallel relation with respect to the lower central supporting pad **31**, thereby providing an additional stacking reinforcement.

The top central supporting pad **31** is now placed within the container so that the bottom margins of the inner panel **37** are in contacting, abutting relation with the top edges of the side flap members **67**. In this position, the upper side marginal surfaces of the central portion of the windshield B are firmly received between the back and front article engaging panels **38** and **39** of the top central supporting pad **31**. Also, the center portion of the top edge of the windshield is in contacting relation with the inner face of the top article engaging panel **40**. In a manner similar to the bottom central supporting pad, the outermost front cushioning panel **41** of the upper central supporting pad **31** is in firm contacting relation against the adjacent inner face of the front side wall **20** and the rear panel **36** is in similar firm contacting relation against the adjacent face of the rear side wall **20**.

The top member panel **43** of each of the end cradle members is then lifted into horizontal position across the top of the container as illustrated in Fig. 12. The positioning of the top member is accomplished by positioning the edge defined by the top cradle score **44** against the upper inner face of the container front side wall **20**. As the top member **43** is positioned, the slack is taken out of the middle cradle member **47** so that the end portions **64** of the windshield B are firmly supported throughout the major portion of their upper edges **68** and lower edges **65**. In effect, the curved middle cradle member **47** acts to hold the curved windshield B toward the front of the container against the die cut corner members. The middle scores **49** and the auxiliary scores **50** permit the middle cradle member **47** to bend to conform with the shape of the end portions **64** of the windshield and thereby firmly embrace the edges **65** and **68**. Of course, with lading having modified shaped end portions, it may be desirable to vary the positioning of the scores **49** and **50** so as to permit the middle cradle member **47** to more readily conform to the modified shape of the end portions.

As the top member panel **43** is placed horizontally across the top of the container, the overhanging side portions **48** thereof will come to rest in flatwise contacting relation against the upper face of the adjacent portions of the outer panel **35** of the upper central supporting pad **31**. In this manner, the top member **43** is prevented from becoming displaced into the container during shipment. To complete the packing of the container, the end top flaps **25** are folded inwardly into flatwise relation against the top member **43** and in a similar manner, the side top flaps **24** are folded inwardly into horizontal, contacting relation against the end top flaps and secured thereto by glue, adhesive, staples **63** or other desirable securing means. In addition, tape **63'** may be applied if desired.

The package thus provided embodies entirely new concepts for protecting deeply curved, frangible sheets during transit. As mentioned previously in the specification, one of the primary types of impact which commonly causes fracture of the curved sheets or windshields is longitudinal or end-to-end shock or movement. With the present invention, when longitudinal shock or impact occurs, the windshield tends to slide within the container in a lengthwise direction. The lengthwise movement will be arrested by the corner members which are firmly disposed between opposed end corners of the exterior container A and the curved surface of the windshield member. Due to the rigidity of the corner member and the cooperating curved edges **53** thereof, any longitudinal or end-to-end movement of the contents is gently translated into transverse or lateral movement at the end of the container. The lateral movement of the

curved end portion 64 of the windshield is gently arrested by the curved middle cradle member 47 which, due to its flexible nature, engages substantially the entire edge portions of the ends 64. Packages employing this invention gently but firmly cushion the deeply curved frangible sheet against longitudinal movement without permitting the curved end portions 64 to flex longitudinally inwardly which, in the majority of instances with curved glass sheets of the type described, causes immediate fracture and failure. It will be noted that in reality the edges 65 and 68 of the end portion 64 are entirely free to move longitudinally within the container since the middle cradle member which supports them, restrains movement within a lateral direction only.

The package also effectively cushions the contents against fracture and failure from vertical and lateral shock and impact. That is, the curved middle cradle members equally gently restrain movement when the exterior container is subjected to vertical and lateral impact.

Various modifications of the embodiment described may be employed to modify the package for particular articles and to suit various types of shipping conditions. For example, the central supporting pad may be varied by omitting one or more of the front cushioning panels to provide a more springable padding effect for the forward portion of the supporting pad.

The particular embodiment described and the variations thereof are intended to be illustrative and not restricted and it is to be understood that the invention herein is susceptible of further modified forms and all such modifications which are similar or equivalent thereto come equally within the claims next appearing.

What I claim is:

1. A package for a relatively long, curved sheet of frangible material having a center portion and curved end portions terminating in substantially normal relation to the longitudinal dimension of the sheet, the package having an exterior container with opposed front and back sides, end walls and top and bottom panels, and sheet engaging interior packing comprising resilient cradle members disposed adjacent the end walls of the exterior container and bowed toward the interior of the container, each cradle member extending from a position adjacent the upper margin of the container front side to a position adjacent the lower margin thereof, each bowed cradle member being bent to receive and conform to the edges of the end portions of the sheet, rigid corner members firmly disposed against the inside of the front corners of the exterior container and positioned between the upper and lower margins of the cradle members, each rigid corner member having an interior curved face substantially normally and slidably engaging the convex outer face of the curved sheet at a position adjacent the end portions thereof, the interior curved face extending from a position in spaced relation from the front side of the container gradually toward the adjacent container end.

2. A package for a relatively long, curved sheet of frangible material having a center portion and curved end portions terminating in substantially normal relation to the longitudinal dimension of the sheet, the package having an exterior container with opposed front and back sides, and end walls and top and bottom panels, and sheet engaging, interior packing comprising a pair of resilient, longitudinally unobstructed cradle members disposed closely adjacent the end walls of the container in bowed relation toward the interior of the container, the upper margin and the lower margins of each cradle member being positioned respectively closely adjacent the upper and lower margins of the container front side, each bowed cradle member being provided with fold lines extending transversely thereof and adapted to permit the cradle member to receive and conform to the edges of the end portions of the sheet, rigid corner members firmly disposed against the inside of the front corners of the exterior container and positioned between the upper and lower margins of the bowed cradle members, each rigid corner member having an interior, curved face to normally and slidably engage the convex outer face of the curved sheet adjacent the end portions thereof, the interior, curved face extending from a position in spaced relation from the front side of the container gradually toward the adjacent container end.

3. The invention as set forth and claimed in claim 2 wherein grooved top and bottom, central supporting pads are provided to respectively engage the upper and lower margins of the central portion of the frangible sheet to prevent lateral and vertical movement thereof and to isolate the center portion from the adjacent parts of the exterior container.

4. The invention set forth and claimed in claim 2 wherein the cradle members are provided at their upper and lower margins with foldably connected top and bottom member panels each adapted to seat in respectively flatwise, horizontally rigid relation against the end margins of the inner faces of the top and bottom container panels.

5. The invention set forth and claimed in claim 2 wherein each rigid corner member is formed of a corner pad having a vertical panel with a pair of foldably connected horizontal end panels having curved inner faces to conform with the adjacent curved outer face of the frangible sheet, the curved faces in the horizontal end panels being provided with normally, inwardly extending slots to receive a vertical reinforcing member having a slotted edge receiving the unslotted portion of the horizontal end panel in alignment with the slots therein, the outer vertical edge of the reinforcing member being disposed in flush alignment with the curved inner faces and the end edge of the vertical reinforcing member contacting in edgewise abutting relation the inner face of the bowed cradle member.

6. In a package for a relatively long, curved sheet of glass having a center portion and curved end portions terminating in substantially normal relation to the longitudinal dimension of the sheet, the package having an exterior, rectangular container with opposed, upstanding, front and back side walls, end walls and horizontal top and bottom panels, and sheet engaging, interior packing comprising a pair of resilient, longitudinally unobstructed, cradle members disposed in contacting, abutting relation to the inner face of the end walls of the container and bowed toward the interior of the container, the upper and lower margin of each cradle member being defined by longitudinal top and bottom fold lines positioned respectively in contacting relation with the upper and lower margins of the container front side, horizontal flat top and bottom members substantially coextensive in dimension with adjacent end portions of the upper and lower top and bottom panels and foldably connected to each bowed cradle member along the longitudinal top and bottom fold lines thereof, each bowed cradle member being bent along a plurality of fold lines to receive and conform to the ends of the end portions of the frangible sheet, rigid corner members firmly disposed against the inside of the vertical front corners of the rectangular exterior container and positioned between the upper and lower margins of the cradle member, each rigid corner member having an interior curved face disposed in a horizontal plane and adapted to normally and slidably engage the convex outer face of the curved sheet adjacent but not extending to the end portions thereof, the interior, horizontally disposed, curved face extending from a position in spaced relation from the front side of the container gradually toward the adjacent container end, and a vertical portion of said corner members rigidly disposed with respect to the horizontal, interiorally curved members and disposed in vertical flush alignment therewith.

7. The invention as set forth and claimed in claim 6 wherein a pair of top and bottom longitudinal grooved

central supporting pads are provided to respectively engage the upper and lower margins of the central portions of the sheet of glass to prevent lateral and vertical movement thereof and to isolate the center portion from the adjacent parts of the exterior of the container.

8. In a package for a relatively long curved sheet of glass having a center portion and curved end portions terminating in substantially normal relation to the center portion, a rectangular, exterior container having upstanding front and back sides foldably connected to opposing end walls along vertical, corner forming score lines and top and bottom closure panels foldably connected to the front and back sides along top and bottom, longitudinal closure score lines, said sheet being disposed within the exterior container with the center portion in adjacent, spaced relation to the front side wall thereof and the curved sheet end portions extending toward the interior of the container in adjacent, spaced relation to the ends thereof, and interior sheet engaging packing comprising a pair of longitudinally, unobstructed, inwardly bowed cradle members terminating along top and bottom cradle fold lines positioned respectively adjacent the upper and lower margins of the front side wall, each said top and bottom fold line defining a hinge connection for horizontally disposed top and bottom cradle panels having a free outer end edge disposed in abutting, contacting relation to the inner face of the adjacent container end and a free side edge disposed in abutting, contacting relation to the inner face of the adjacent container back side wall and a pair of rigid corner members each firmly disposed against the interior faces of the corners defining the ends of the front side of the container and having a horizontal part with a pair of spaced, horizontal panels each foldably connected to an upstanding, intermediate panel, the horizontal panels having curved concave side edges fitting in abutting, normal, contacting relation against adjacent, curved portions of the glass sheet intermediate the end and center portions thereof, said spaced, horizontal panels having a pair of vertically aligned slots extending into the panel from the curved side edges thereof, each rigid corner member having a vertical reinforcing panel engaged into the vertically aligned slots in said horizontal panels, the free side edge of the reinforcing panel being disposed in vertical, flush alignment with adjacent portions of said curved, concave edges, the end edges of said vertical reinforcing panel abutting in contacting relation with the inner face of the bowed cradle member.

9. In a package for a relatively long curved sheet of glass having a center portion and curved end portions terminating in substantially normal relation to the central portion, a rectangular exterior container having upstanding front and back sides foldably connected to opposing end walls along vertical, corner forming, score lines and top and bottom closure flaps foldably connected to front and back sides along top and bottom longitudinal score lines, said sheet being disposed within the exterior container with the center portion in adjacent, spaced relation to the front side wall thereof and the curved sheet end portions extending toward the interior of the container in adjacent, spaced relation to the ends thereof, and interior sheet engaging packing comprising a pair of longitudinally, unobstructed, inwardly bowed cradle members terminating along top and bottom cradle fold lines positioned respectively adjacent upper and lower margins of the front side wall, each said top and bottom fold line providing a hinged connection for horizontally disposed top and bottom cradle panels having a free outer end edge disposed in abutting, contacting relation to the inner face of the adjacent container end, a free side edge disposed in abutting, contacting relation to the inner face of the adjacent container back side wall and a free inner end margin with a free inner end marginal projection extending toward the center of the container beyond the bowed cradle member, and a pair of rigid corner members each firmly disposed against the inner face of the corners defining the ends of the front side of the container and having a horizontal pad with a pair of horizontal panels each foldably connected to an upstanding, intermediate panel, the horizontal panels having curved concave side edges engaging in abutting, contacting relation against adjacent curved portions of the glass sheet intermediate the end and center portions thereof, said spaced, horizontal panels having a pair of vertically aligned slots extending into the panel from the curved side edges thereof, each rigid corner member having a vertical reinforcing panel with upstanding side edges and opposing end edges, the reinforcing panel being engaged into the vertically aligned slots in said horizontal panels, one of the upstanding side edges of the reinforcing panel being disposed in vertical, flush alignment with adjacent portions of said curved, concave edge, the opposing end edges of said vertical reinforcing panel abutting in contacting relation with the inner face of the bowed cradle member, and a pair of top and bottom central supporting pads, each respectively, firmly disposed against the top and bottom closure panels of the container and having front and back sides respectively disposed in firm abutting relation with adjacent portions of the front and back container sides, each central supporting panel having a relatively shallow, longitudinal channel in adjacent, spaced relation to said front side, the end edges of the central supporting pads engaging the bowed end cradle members in abutting, contacting relation, an the free inner end margins of the top and bottom central supporting pads respectively overlapping the projecting inner end margins of the top and bottom cradle panels.

10. The invention as set forth and claimed in claim 9 wherein a reinforcing member having a pair of foldably connected, vertically disposed panels extending in abutting, contacting relation between the bottom and top central supporting pads is provided to afford vertical, stacking reinforcement for the exterior container.

11. A package for a relatively long, curved sheet of frangible material having a center portion and curved end portions terminating in substantially normal relation to the longitudinal dimension of the sheet, the package having an exterior container with opposed front and back sides, end walls and top and bottom panels, and sheet engaging interior packing comprising resilient cradle members disposed adjacent the end walls of the exterior of the container and bowed from adjacent the front container wall toward the rear container wall, each bowed cradle member being curved to conform to the edges of the end portions of the sheet, rigid front corner members fixed within the bowed cradle members and having interior faces curved to conform with adjacent curved portions of said frangible sheet intermediate the center portion and the curved end portions thereof.

No references cited.