

Oct. 24, 1939.

H. BURACK

2,177,241

PACKAGE FOR FRAGILE ARTICLES

Filed Aug. 21, 1935

2 Sheets-Sheet 1

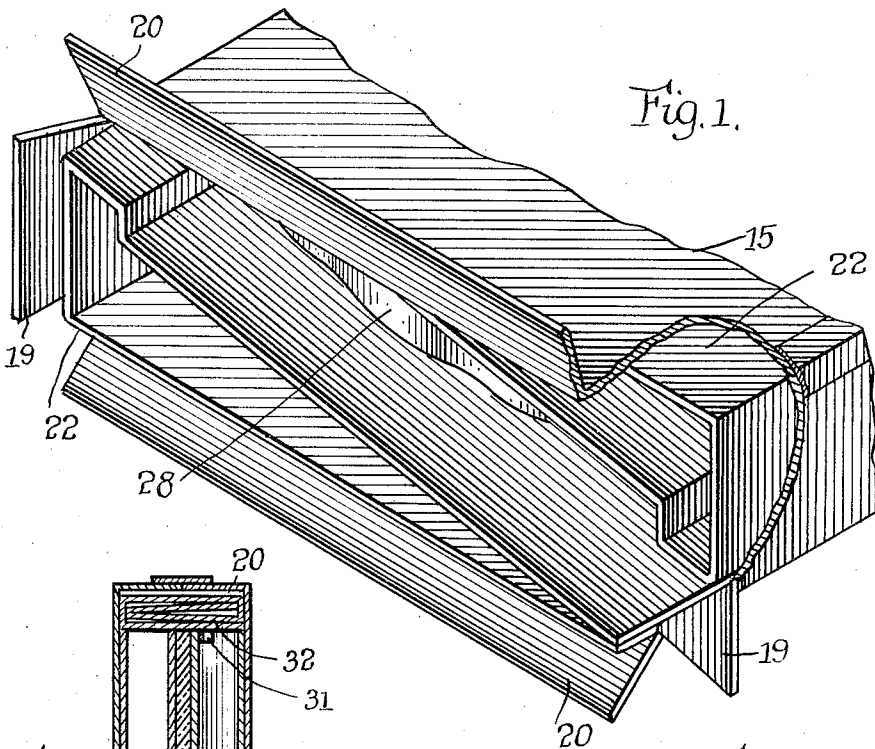


Fig. 1.

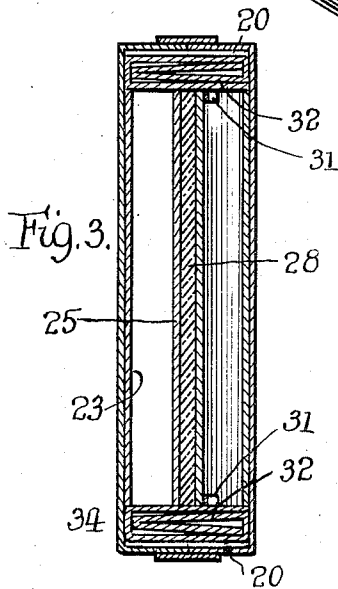


Fig. 3.

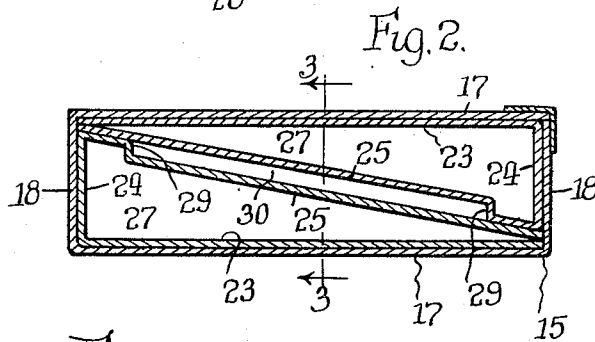


Fig. 2.

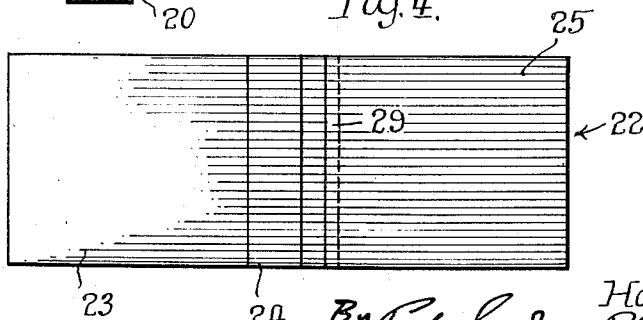


Fig. 4.

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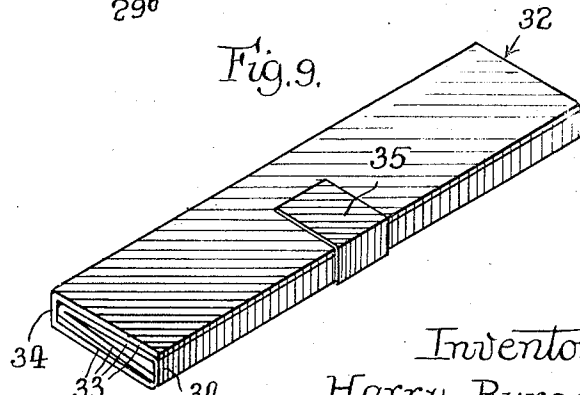
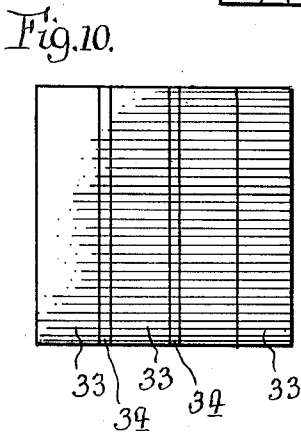
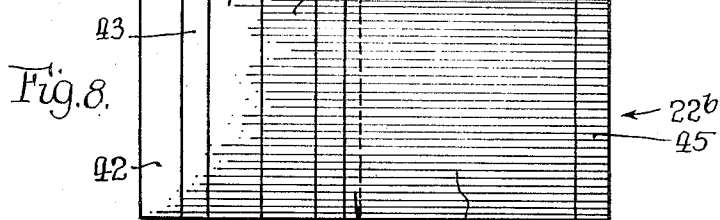
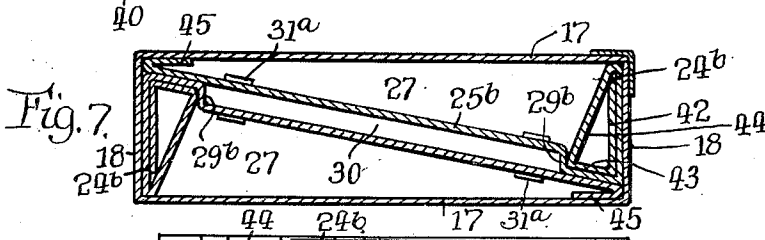
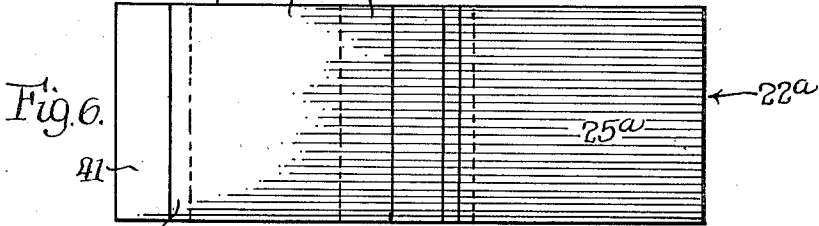
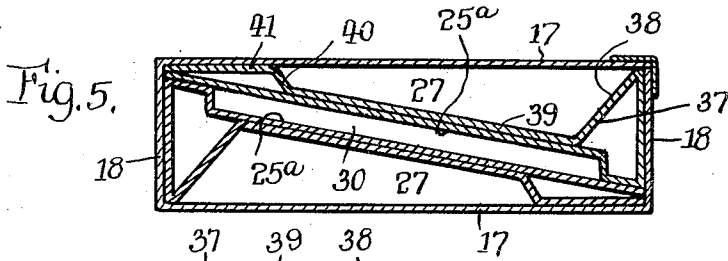
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2,177,241

PACKAGE FOR FRAGILE ARTICLES

Filed Aug. 21, 1935

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,177,241

PACKAGE FOR FRAGILE ARTICLES

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Application August 21, 1935, Serial No. 37,209

11 Claims. (Cl. 206—62)

This invention relates to an improved shipping package, and more particularly concerns a package adapted for safely transporting fragile articles which are ordinarily subject to substantial damage hazard in shipment.

A principal object of the invention is to provide a package providing a safe medium for transporting easily damaged or breakable articles, which is characterized by a novel and highly efficient relationship of parts defining a fixed protective receptacle within which the article is carried substantially spaced from all parts of the enclosing container so that the package may be roughly handled without damage to the fragile contents.

Another object resides in the provision in a package of the foregoing character of a novel receptacle provided by means formed of relatively stiff, originally flat sheet material divided along spaced parallel lines into a plurality of panels bent into a given angular relationship and adapted to fit in fixed position snugly within the container.

Another object is to provide means in a shipping package for maintaining a fragile article such as a mirror or the like in a protected substantially fixed suspended condition in the enclosing casing, in such manner as to leave substantial air spaces between the article and the casing whereby to eliminate the usual voluminous excelsior, straw, corrugated or similar packings heretofore employed for the purpose.

Other objects reside in the provision of article-carrying means made of box-board defining a flattened tubular receptacle and which may be closed at opposite ends by improved resilient pads; in the provision of an improved cushioning pad including a plurality of spaced thicknesses of resilient sheet material; and in the provision of a strong, simple and efficient shipping package that may be manufactured and sold at low cost, which may be kept in flat, knock-down condition until use, and may be assembled and filled quickly with a minimum of time and labor.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawings, in which:

Figure 1 is a fragmentary perspective view of a package embodying the principles of the invention.

Fig. 2 is a sectional view through the package.

Fig. 3 is a sectional view taken substantially along line 3—3 of Fig. 2.

Fig. 4 is a plan view of a blank forming part of the novel article holding means.

Figs. 5, 6, 7 and 8 show slightly modified forms of the invention.

Fig. 9 is a perspective view of my improved cushioning pad.

Fig. 10 is a plan view of the blank used in forming the pad.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawings and will herein describe in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

In the drawings the invention is shown by way of example as applied to a shipping package for mirrors or similar flat fragile articles. For such a package the outer casing or container 15 is ordinarily made of box-board such as corrugated board, and having opposed pairs of parallel walls 17 and 18. By way of illustration herein, the container is shown as being of tubular form closed at opposite ends by the usual overlapping flaps 19 and 20. It will be apparent, however, that it will make little difference in so far as the present invention is concerned from which side the container may be closed or by what method the contents are placed therein.

Heretofore elaborate and voluminous packings of excelsior, straw, folded corrugated liners and the like have been placed about fragile articles to protect them against damage due to rough handling of the package. Prominent markings have also usually been placed on the package to indicate the nature of its fragile contents so that special care would be exercised in handling. In spite of these elaborate expedients and precautions, breakage and damage loss have usually been enormous. I have found that such loss has resulted principally because the impact of blows upon the outside of the container has been transmitted with damaging effect through the packing to the article. Apparently, under the force of a damaging blow, the packing material compacts sufficiently for transmission of the shock.

By the present invention, however, the difficulties inherent in prior methods, have been so far overcome that in shipping mirrors, for example, I have found that the safety factor afforded by my package is large enough to make unnecessary warning as to the fragile nature of the contents.

In other words, the package may be subjected to the same rough treatment as is given in usual course to an ordinary package containing non-breakable contents.

6 To the attainment of these new results, my invention contemplates novel article supporting means adapted to fit snugly in the container and maintain the article in spaced relation to the container walls. Suitable relatively stiff sheet material such as box-board may be used, corrugated board being desirable for the purpose. One or more sheets of material of proper length and breadth are creased along predetermined lines and folded to form an article holding device fitting snugly within the casing 15, and defining a receptacle for closely receiving the article. In the present instance a blank 22 (Fig. 4) is shown as creased along a plurality of parallel lines to divide the same into a plurality, herein three, hinged panels 23, 24 and 25. The blank is then folded to bring its ends together whereupon it will assume a substantially triangular shape as best seen in Figs. 1 and 2, defining a substantial air space 27 and forming one section of a two-part article holding means. Insertion of the formed section may be simply effected by sliding the same into the container with the panel 23 lying against one of the walls 17, the panel 24 abutting one of the walls 18 and the panel 25 extending diagonally across the central part of the container. Another similar section 22 is placed within the triangular space remaining in the casing 15 in coacting relation to the first section. As thus positioned, each section 22 extends in part into three corners of the container and the abutting coacting ends of the panels 25 extend into diagonally opposite corners. With the sections thus in position, it will be seen that all portions thereof are in snug abutment either against the adjoining section or against the container walls, and the angular relationship of the various panels provides a braced rigid organization.

The panels 25 provide article supporting surfaces adapted to receive an article therebetween. A flat article such as a mirror 28 will thus be engaged snugly on opposite sides and maintained in a fixed position spaced from the walls 17 of the container. Insertion of the article between the panels is facilitated by a spaced relation thereof throughout a substantial central area, the extent of which will be governed by the size and shape of the article. For this purpose each panel 25 is offset by a shoulder 29 formed near the hinged edge so as to define a tubular receptacle 30 for receiving the article. Transverse edge movement of the mirror will be restrained by engagement thereof with the shoulders 29. Blows against the container walls 17 will not be transmitted to either face of the mirror because of the air spaces 27, and the edges of the mirror are protected from impact by the inherent resiliency of the sheet material and because the effect of an edgewise blow will be transmitted in a parallel plane past the article. The reinforcement provided by the panels 23 and 24 for the respective container walls 17 and 18, aids in preventing penetration of a damaging object through these walls.

70 Any tendency of the holding panels 25 to spread apart due to the weight of the article thereagainst when the package is lying on one side may be overcome by applying retaining means such as strips of adhesive tape 31 between the edges of the panels. The article will thus be prevented

from sliding toward the corner of the container between the normally abutting portions of the holding panels.

The invention also contemplates improved means for maintaining the opposite edges of the article holders in spaced relation to the adjacent container walls, and provides resilient cushioning means enclosing the opposite ends of the receptacle 30. To this end I have provided similar pads 32 proportioned to fit snugly within the ends of the container (Fig. 3). Each pad is so constructed along its opposite sides as to afford a rigid connection between the edges of the panels 23 and the end walls of the container, but the intermediate portion of the pads is resilient and affords a cushion of substantial thickness. In the present instance each pad is constructed of a single sheet of suitable material, preferably corrugated board, creased along spaced parallel lines to provide a plurality of similar panels 33 of substantial width, and narrow panels 34 between certain of the wider panels (Fig. 10).

Herein the panels 33 are shown as four in number with two panels hinged together and two separated by the two panels 34. The pad is formed by folding the sheet so that the two panels 33 separated by the panels 34 will provide the outside faces of the pad, and the remaining panels 33 are folded one upon the other and lie between the outer panels. An adhesive strip 35 may be secured to the edge of the outer panel 33 and to the body of the pad for maintaining the folded condition thereof. As will be seen from Fig. 9, the outer panels 33 are maintained in substantially spaced relation by the narrow panels 34 which form the sides of the pad, and since the inner panels are of insufficient thickness to fill this space, a substantially cellular organization results. Thus, the central portion of the pad may be substantially compressed before the panels 33 are brought together and because of the yieldable nature of the sheet material considerable compression will be necessary to reach the limit of compactibility. Consequently, with the pads 32 in place as seen in Fig. 3, blows upon the ends of the container will be substantially prevented from transmission to the article.

Assembly of my improved shipping package for use is a simple proposition. For packing a mirror, I utilize the pads 32 in the opposite ends of the container, first placing a pad in one end of the container and then inserting the holders 22 with the edges of the panels 23 resting upon the edges of narrow side walls 34 of the pads and the receptacle closed by the cellular central portion of the pad. The mirror is then slipped into position, the remaining pad placed over the open end of the receptacle 30 and the flaps 19 and 20 fastened down in any desirable manner. The mirror will then be held in suspended relationship to all walls of the container and will be thoroughly protected against any rough handling to which the package may be subjected in the course of transportation.

As seen in Figs. 5 and 6 the article holding means may be slightly modified to reinforce the walls of the receptacle 30. To this end instead of providing a panel lying wholly against the container wall 17, the section 22^a may be provided with a panel 37 having a plurality of hinged connected parts 38, 39, 40 and 41. These parts are so proportioned that when the holder is inserted in the container with the edge of the panel 37 abutting the container wall 18, the part 39 will be offset into abutment with the panel

25^a. In this manner the panels 25^a and 31 provide a double wall for the receptacle 30, and the diagonally extending parts 38 and 40 provide resilient braces between the container and receptacle walls. Thus, the receptacle walls will be held against any tendency to spread apart.

The modified form shown in Figs. 7 and 8 provides an economical and efficient arrangement wherein any tendency of a thin, flat object to slip past the shoulders 29^b between the abutting panels 25^b of the article holders is substantially avoided. For this purpose instead of a panel following the container wall 17, the end of the sheet is bent to form a triangularly shaped reinforcing roll adjacent the edge of the receptacle 30. Thus, the sheet 22^b is provided near one end with connected panels 42, 43 and 44 which are folded inwardly into a substantially triangular roll in which the panel 44 extends toward the corner formed by the shoulder 29^b and the angular joint between the panels 42 and 43 lies snugly in the corner between the panels 25^b and 24^b. Positive and permanent contact between the abutting ends of the panels 25^b is assured by providing an outwardly bent panel or flap 45 on the free end of each panel. This flap 45 contacts the container wall 17 when the device is assembled and maintains a tight fitting relationship between the parts. By strengthening the end of the panel 25^b, the flap prevents undesirable yielding thereof while in use. With this form of the invention an article having a relatively sharp edge will be prevented from cutting through the shoulder 29^b and moving edgewise relative to the receptacle. Adhesive strips 31^a will prevent spreading of the margins of the panels 25^b near the flaps 45.

For convenience in manufacture, I have found it desirable to make the article holding means in two parts, but manifestly the same may be made in one part of a single sheet of material appropriately creased and folded. Furthermore, the invention may easily be adapted for transporting variously shaped articles, and in some instances it may not be necessary to use the pads 32 since the article may be held in place within the receptacle out of contact with the ends of the container.

From the foregoing it will be apparent that I have provided a novel shipping package in which the article to be transported is held fixedly within the container in substantially spaced relation to all the walls thereof in a substantially suspended or floating condition, and such result is attained by the use of a minimum of material and in an efficient and simplified manner.

I claim as my invention:

1. The combination in a package for transporting fragile articles, comprising a container, article holding means within said container including a plurality of connected panels forming opposed triangularly arranged members extending between and snugly engaging opposite walls of the container and defining a tubular receptacle having its walls substantially spaced from the container walls and having its ends adjacent opposite end walls of the container, and cellular pads formed of folded material providing cushions filling the space between said receptacle ends and the end walls of the container, whereby an article in said receptacle will be held suspended in substantially spaced relation to all parts of said container.

2. A shipping package of the character described comprising, in combination, a container having a plurality of flat connected walls, a pair

of slidable members abutting at opposite ends and engaging opposite walls of said container, said members being spaced apart throughout a central portion thereof and providing an article receptacle, and cushioning means between the ends of said receptacle and the adjacent walls of the container.

3. The combination in a package for transporting fragile articles, of a container having a plurality of connected flat walls, and a pair of slidable members fitting within said container and defining an article receiving receptacle therebetween, each of said members including connected portions engaging two angularly joined walls of said container and another portion extending diagonally between said connected portions and offset intermediate its ends to form a side wall of said receptacle.

4. A shipping package of the character described comprising, in combination, a container including a plurality of parallel walls, and a pair of coating members formed of relatively stiff sheet material bent along given lines into a plurality of connected panels and fitting snugly within said container, said members including a pair of face-to-face holding panels extending across the interior of said container and coating to receive an article snugly therebetween, a panel connected to one end of each of said holding panels and coating with the respective opposite walls of said container to maintain a fixed position of the holding panels, and another panel on each member fitting against opposite walls of the container to further aid in maintaining the position of the holding panels and each having an offset portion extending inwardly into contact with the adjacent holding panel to reinforce the same.

5. A package for transporting fragile articles including, in combination, a flat wall angular container having therein a pair of coating slidably positioned members defining an article receiving space therebetween, each of said members including a panel extending from one corner of said container toward an opposite corner and being offset adjacent said opposite corner to maintain a spaced relation between opposed portions of the panels, the end of each of said members near said offset being bent to form a triangular reinforcing roll having two angles fitting in adjacent corners of the container and the remaining angle fitting in the corner between said offset and said panel.

6. A cushioning member for a package of the character described comprising flat sheet material bent along several lines and folded into an elongated body having two wide walls and narrow connecting walls maintaining the wide walls in substantially spaced relation, and a plurality of hinged portions connected to one of said narrow walls and lying between said wide walls, said hinged portions occupying only a part of the space between said wide walls and dividing the same into a plurality of air spaces, whereby the center of the pad will be compressible when force is applied thereto.

7. A cushioning member for a package of the character described, comprising a flat sheet of material creased along several lines to divide the same into a plurality of connected wide and narrow panels, said sheet being folded into an elongated flat body with two wide panels forming outer faces and two narrow panels forming connecting walls and one or more wide panels between said outer faces but leaving the space between said faces substantially unfilled whereby

the center of the pad will be compressible upon the application of force thereto.

8. In means for packing a mirror or the like for shipment within a tubular container, a pair of paperboard panels extending in face-to-face relation edgewise between opposed walls of the container, said panels being generally planular but having adjacent to and parallel with alternate edges thereof a pair of closely spaced scorings forming on each panel a narrow panel strip and a hingedly joined portion, said panel strips extending substantially perpendicularly to the opposing panels and producing therebetween a narrow flat space for receiving a mirror, said portions being offset from the major planes of their connected panels and abutting the margins of the opposing panels flatwise, the outer edges of said margins as well as the outer edges of the opposed abutting portions bearing against the respective opposed walls of the container, and means for holding said panels and the respective abutting portions against separation.

9. In means for packing a mirror or the like for shipment within a tubular container, a pair of paperboard panels extending in face-to-face relation edgewise between opposed walls of the container, said panels being generally planular but having adjacent to and parallel with alternate edges thereof a pair of closely spaced scorings forming on each panel a narrow panel strip and a hingedly joined portion, said portions abutting the planular margins of the opposing panels and said panel strips extending substantially perpendicularly to the opposing panels, and producing therebetween a narrow flat space for receiving a mirror, means for holding the outer edges of said planular margins as well as the outer edges of the abutting portions in position against the respective opposed walls of the container, and means coacting with said panels to avoid spreading of said portions away from the respective opposed panels whereby to prevent edgewise movement of the mirror between said portions and margins.

10. A mirror shipping device adapted to be inserted within an enclosing container for supporting a mirror in substantially suspended relation away from all walls of the container comprising, in combination, a pair of opposed parallel

paperboard main panels spaced apart to receive the mirror flatwise therebetween, said main panels being dimensioned to lie in supporting relation to the entire respective opposite faces of the mirror and to project edgewise beyond the side edges of the mirror, the projecting edge portions of said main panels including means for holding the mirror positively in edgewise spaced relation to the walls of the container, and auxiliary panels extending from said main panel side edges to fit against the walls of the container for maintaining said main panels in positive mirror engaging relation and with their outer faces in spaced relation to the opposed walls of the container.

11. In combination in a mirror shipping package of the character described, a tubular rectangular container having closure means at the opposite ends thereof to form end walls, a pair of paperboard panels extending in parallel relation firmly diagonally between two longitudinal corners of said container and being shorter than the container to be in endwise spaced relation to said end walls, said panels being oppositely offset in spaced parallel relation in a central portion thereof to provide a pocket for receiving a mirror snugly flatwise therebetween and for holding the mirror out of edgewise contact with said corners of the container, means between the ends of said panels and the end walls of the container to protect the adjacent edges of the mirror from concussions that may impinge upon said end walls, and panel extensions hingedly connected to those edges of said panels which are in said longitudinal corners and engaging the adjacent walls of the container for maintaining said panels together in mirror engaging relation, said panel extensions being so located that concussions against any wall of the container cannot be transmitted to the mirror with damaging effect through said panel extensions, the relationship of said panels and said panel extensions being such as to permit slight yielding movement of the mirror diagonally across the line of concussion force against any of the side walls of the container and thereby avoiding shattering effect of such force upon the mirror.

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