

July 28, 1959

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2,896,833

PROTECTIVE CORNER PAD FOR PACKING MIRRORS AND THE LIKE

Filed June 19, 1956

4 Sheets-Sheet 1

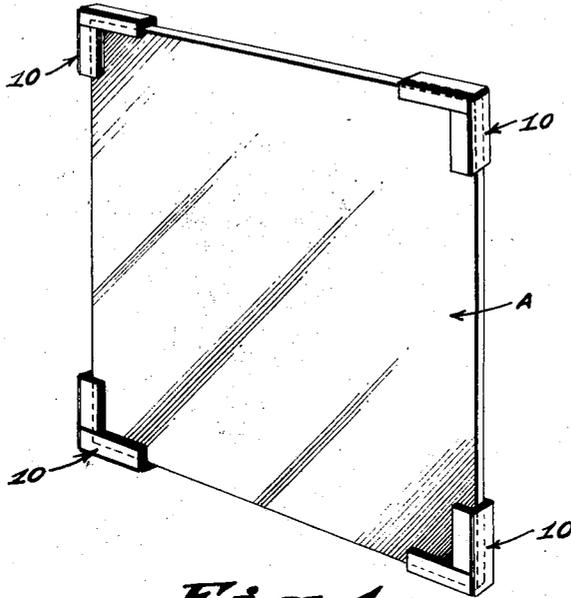


Fig. 1

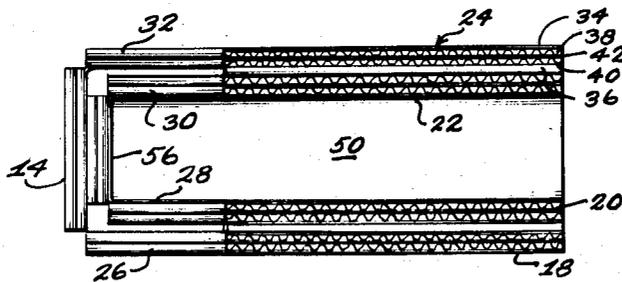


Fig. 2

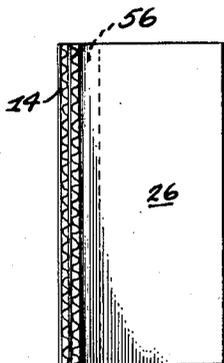
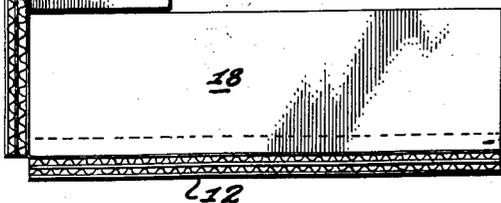


Fig. 3



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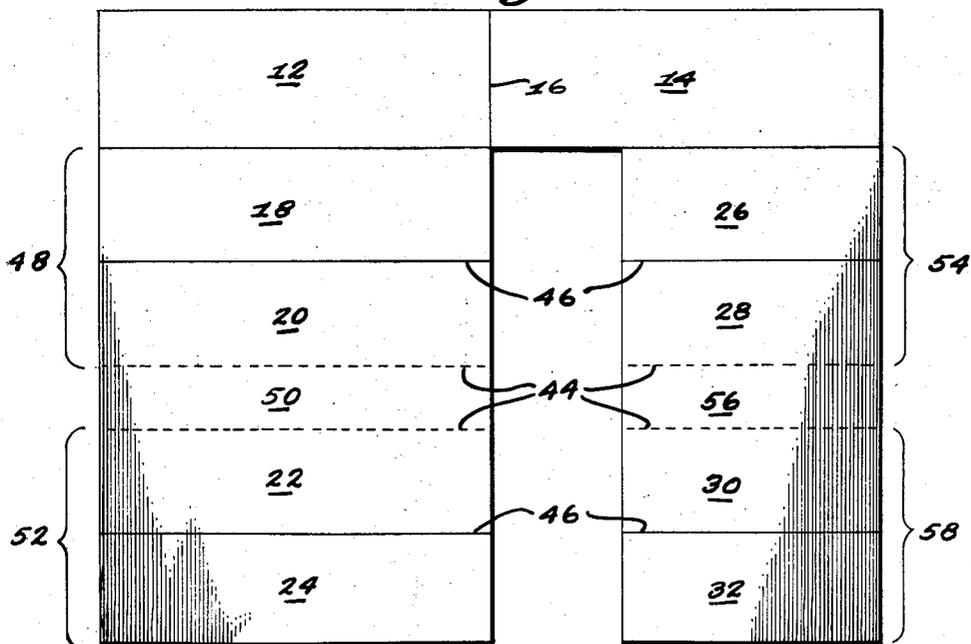
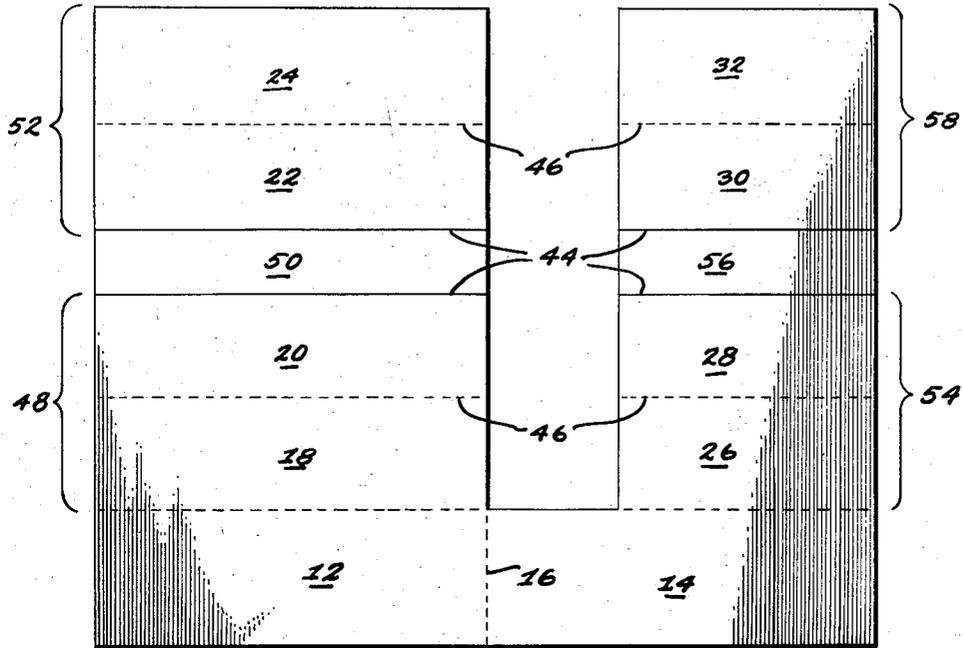
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4 Sheets Sheet 2



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Fig. 6

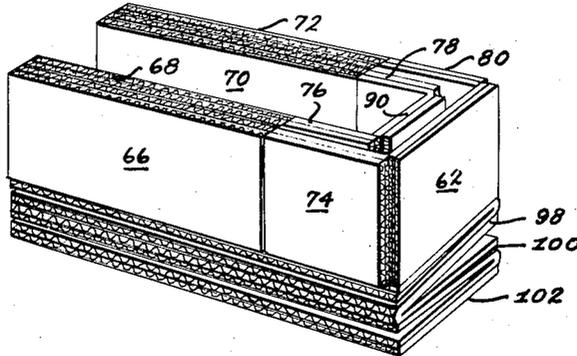


Fig. 7

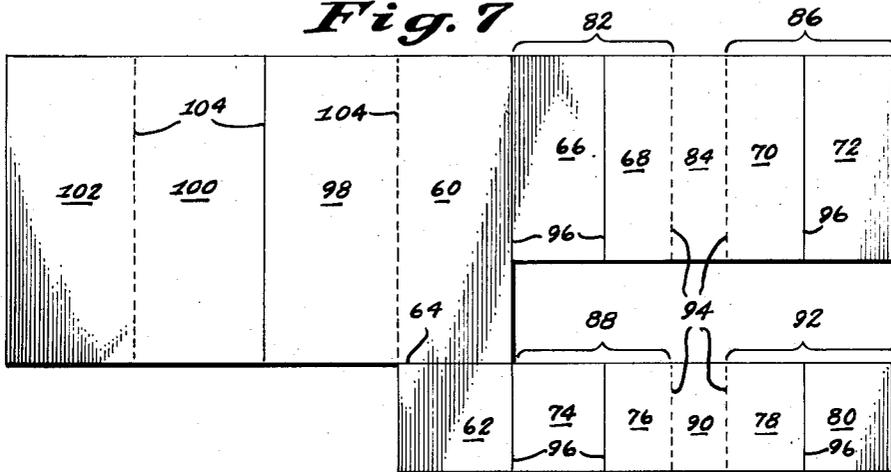
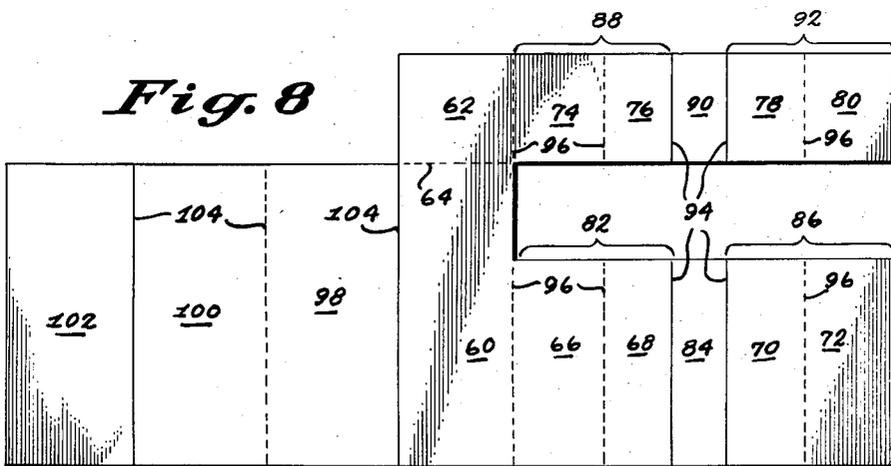


Fig. 8



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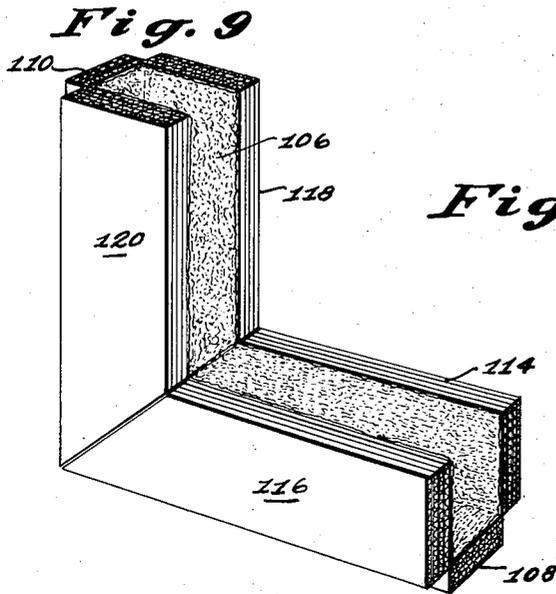


Fig. 10

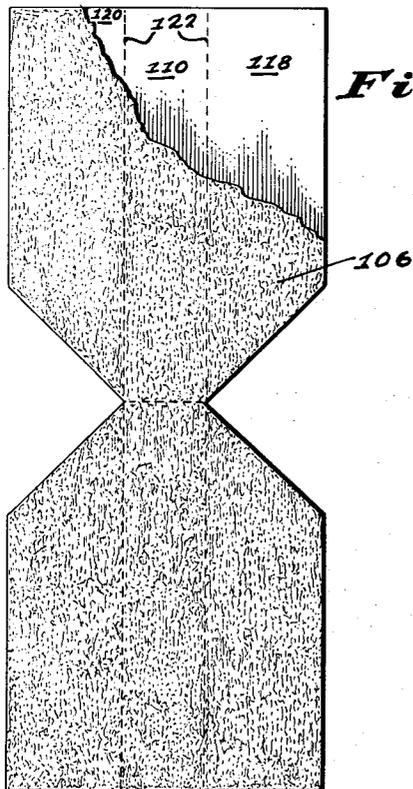
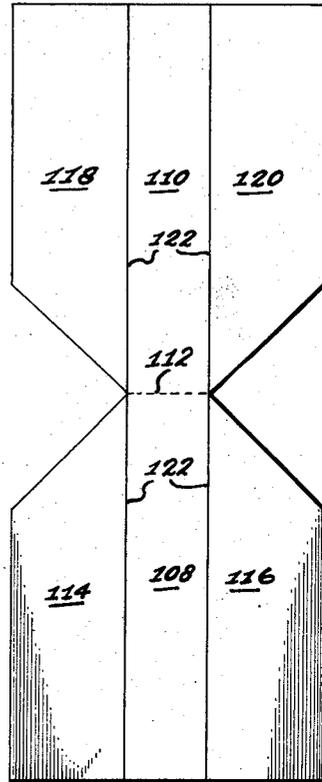
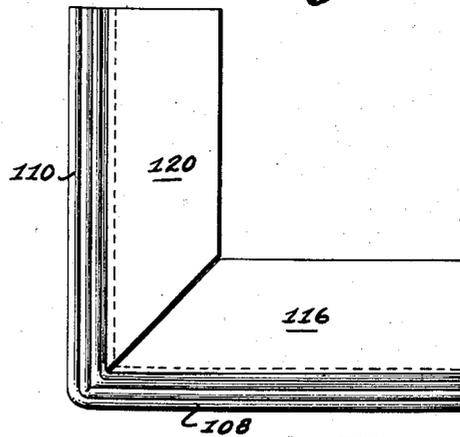


Fig. 11

Fig. 12



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PROTECTIVE CORNER PAD FOR PACKING MIRRORS AND THE LIKE

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Application June 19, 1956, Serial No. 592,352

2 Claims. (Cl. 229-14)

This invention relates to a corner pad for protecting fragile and breakable articles such as glass mirrors and the like. More particularly the invention relates to a corner pad for use in a shipping container and comprising corrugated paperboard having a series of cut scores whereby the corrugated board can be folded to provide for cushioning the corners of mirrors.

The protective corner pad of the present invention is characterized by edge protecting panels which are hinged endwise and by side protecting panels which are hinged sidewise to each of the edge panels, so that the edge panels are foldable in a right angular relation to each other with a channel in cross-section formed by folding the side protecting panels on each of the edge panels. When the edge panels are folded in a right angular relation the two channels form two right angularly related legs which may be used effectively to protect the corners and adjacent edges of a glass mirror or the like.

Glass mirrors are commonly shipped in corrugated or wooden boxes with the mirrors protected by wooden frames or all-around packings of bulky paper, corrugated pads or straw. The present invention provides for effective cushioning at the corners and other vital points and thereby decreases substantially the labor and expense required by the usual all-around packings.

Also, the invention allows the use of cut scores on both sides of a corrugated paperboard blank whereby certain portions of the blank can be easily folded over in face to face contact with other portions, thereby providing a double thickness at all the edge and side panels of the corner pad in its assembled position, and affording the necessary spacing between mirrors and shipping containers required by railroad regulations.

These and other features of the present invention are described in detail below in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view of corner pads embodying the present invention in protective position at each corner of a glass mirror;

Fig. 2 is a top plan view of one of the corner pads shown at the bottom of this mirror to the left in Fig. 1;

Fig. 3 is a side elevational view of the corner pad shown in Fig. 2;

Fig. 4 is a top plan view of the blank from which the corner pad shown in Fig. 2 is formed, the solid and dotted lines between the panels indicating the hinge lines upon which the panels are folded to form the assembled corner pad;

Fig. 5 is a bottom plan view of the blank shown in Fig. 4;

Fig. 6 is a perspective view of a modification of the present invention which is similar to the corner pads of Figs. 1-5 except that one of the legs is thicker and longer than the other legs;

Fig. 7 is a bottom plan view of the blank of the modification shown in Fig. 6;

Fig. 8 is a top plan view of the blank shown in Fig. 7;

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Fig. 9 is a perspective view of a further modification of the present invention which can be provided with a non-abrasive lining material;

Fig. 10 is a bottom plan view of the blank from which the corner pad shown in Fig. 9 is formed;

Fig. 11 is a top plan view of the blank shown in Fig. 10, in which this arrangement of the non-abrasive lining material is illustrated with a portion of this lining material broken away; and

Fig. 12 is a side elevational view of the modification shown in Fig. 9.

While the protective corner pads of this present invention may be made of various materials, such as those known in the art to which this invention applies as solid fibre, pasted chip board, lined box board and in general of any paperboard material having a liner and a filler, it is preferably made of corrugated paperboard. It has been found that corner pads made of a double wall corrugated paperboard are very effective to protect glass mirrors and like articles being shipped, due to the resilient and yet firm and rigid characteristics of this type of paperboard.

Referring first to the preferred embodiment of the invention shown in Figs. 1-5 of the drawings, and more particularly to Fig. 1, corner pads 10 of the present invention are shown arranged about the corner of a glass mirror A.

Referring now to Figs. 2 and 3, one of these corner pads 10 is shown comprising exterior edge protecting panels 12, 14 integrally hinged endwise at 16 for folding to a right angular relation with respect to each other. It is noted that a channel in cross-section is formed on each of the exterior edge protecting panels. The channel on exterior edge panel 12 is formed by side panels 18, 20, 22, 24 which are hinged sidewise to the exterior edge panel 12. Likewise, the channel on exterior edge panel 14 is formed by side panels 26, 28, 30, 32 which are hinged sidewise to the exterior edge panel 14. The two channels form two right angularly related legs which are used for protection of the corners and adjacent edges of a glass mirror.

Each corner pad 10 is similarly formed and, as shown in Fig. 2, comprises a corrugated paperboard material having outer facing liners 34, 36, corrugated fillers or walls 38, 40 and intermediate liner 42. The corner pads are folded about hinge lines formed by cut scores with the cut or slit extending through all the liners and fillers except one outer liner. The cut scores 44, 46 are in a direction parallel to the sides of the side panels while cut score 16 is arranged between the adjacent ends of exterior edge protecting panels 12 and 14. It is noted that the cut scores 44 are regular cut scores in which the cut extends through all the liners and fillers except the bottom liner, and cut scores 46 being reverse cut scores in which the cut extends through all the liners and fillers except the top outer liner.

The blank shown in Figs. 4 and 5 comprises the two exterior edge protecting panels 12, 14 integrally hinged endwise at the hinge line formed by cut score 16 for folding to a right angular relation with respect to each other. A transverse extension is integrally hinged sidewise to each of these edge panels 12, 14 the transverse extension extending from edge panel 12 having a first side panel section 48, and interior edge protecting panel 50 integrally hinged sidewise to the first side panel section 48 and a second side panel section 52 integrally hinged sidewise to the interior edge panel 50. The first side panel section 48 comprises side panels 18, 20 which are arranged in a face to face relation in the assembled corner pad, while the second side panel section 52 comprises the two side panels 22, 24 which are also arranged in face to face relation in the assembled corner pad.

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The transverse extension on exterior edge panel 14 comprises a first side panel section 54 integrally hinged sidewise to exterior edge panel 14, an interior edge panel 56 integrally hinged sidewise to the first side panel section 54 and a second side panel section 58 integrally hinged sidewise to the interior edge panel 56. The first side panel section 54 comprises side panels 26, 28 and the second side panel section 58 comprises side panels 30, 32.

In forming the corner pad from the blank, side panels 24, 32 are folded in face to face relation with adjoining side panels 22, 30, respectively. Next, side panels 20, 28 are folded in face to face relation with side panels 18, 26, respectively. Now, interior edge panels 50, 56 are disposed in face to face relation with exterior edge panels 12, 14, respectively; side panels 18, 20 and 26, 28 being folded in a right angular relation to exterior edge panels 12 and 14, respectively, with side panels 22, 24 and 30, 32 also being folded in right angular relation to exterior edge panels 12 and 14 respectively, in the same step in which interior edge panels 50, 56 are disposed. It is observed that interior edge panel 50 overlies exterior edge panel 12 and interior edge panel 56 overlies exterior edge panel 14, so as to face and lie flat against the edge panels 12 and 14.

The corner pad is now completed except for the final step of folding at cut score line 16. It is observed that the corner pad previous to this final folding comprises two separate channels in cross-section, one extending lengthwise on exterior edge panel 12 and the other extending lengthwise on exterior edge panel 14. The channel on panel 12 is then folded about the hinge line at cut score 16 whereby two right angularly related legs are formed for serving as a protective corner pad.

It will be noted that the completed corner pad has a double thickness or double ply of paperboard on all sides, each thickness being formed of a double wall, double faced corrugated paperboard as clearly shown in Figs. 2 and 3.

The corner edges of glass mirror A are received in the channels or slots of the pads, and since the corner edges extend to a depth less than the thickness of the pads, they are supported by the pads in spaced relationship to the walls of the shipping container on all four sides thereof. In the event the container is subjected to shocks in transit, the corrugations in the double thickness of the corner pads form a resilient cushion for the glass mirror and allow a slight displacement of the mirror if necessary. The four pads 10 as shown in Fig. 1 cooperate to hold the glass mirror in spaced relationship to the walls of the container and to one another and form resilient cushions preventing breakage of the mirrors under ordinary transportation conditions. The four corner pads can form the sole means for supporting the glass mirror and only engage the corners of the glass mirror leaving the balance of the mirror free and unengaged.

In Figs. 6, 7 and 8, a protective corner pad construction similar to the corner pad 10 in Figs. 1-5 is illustrated. This corner pad differs only in having one leg shorter than the other and in making use of a number of extra edge panels on one leg of the corner pad. This modification is particularly useful in the event that irregularly shaped mirrors are shipped and some corners are spaced from the walls of the container differently than others.

Referring now to Fig. 6 of the drawings, the corner pad is shown comprising exterior edge protecting panels 60, 62 integrally hinged endwise at the hinge line formed by cut score 64 for folding to a right angular relation to each other. Each of the exterior edge panels 60, 62 has a channel in cross-section formed thereon, the channel on exterior edge panel 60 being formed by side panels 66, 68, 70, 72 and the channel on exterior edge panel 62 being formed by side panels 74, 76, 78, 80. The side panels are all hinged sidewise to the respective exterior edge panels.

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The blank used for forming the corner pad shown in Figs. 7 and 8 comprises two transverse extensions integrally hinged sidewise to exterior edge panels 60, 62. The transverse extension extending from exterior edge panel 60 comprises a first side panel section 82, an interior edge panel 84 integrally hinged to the first side panel section and a second side panel section 86 integrally hinged to a side of the interior edge panel. The transverse extension on exterior edge panel 62 comprises a first side panel section 88, an interior edge panel 90 integrally hinged sidewise to the first side panel section, and a second side panel section 92 integrally hinged sidewise to interior edge panel 90. In folding this embodiment of the invention, a procedure similar to that used in folding the pad of Figs. 1-5 is employed. Side panels 72 and 80 of the second side panel sections 86 and 92 respectively, are disposed in face to face relation with side panels 70, 78, respectively. Next, side panels 68, 76 are folded in face to face relation with side panels 66, 74, respectively. Now, interior edge panels 84, 90 are disposed in face to face relation with exterior edge panels 60, 62, respectively, so as to face and lie flat against these panels. During this last step side panels 66, 68 and 74, 76 of the first side panel sections 82, 88 respectively, are folded to a right angular relation with exterior edge panels 60 and 62, respectively, and side panels 70, 72 and 78, 80 are also arranged at a right angular relation with exterior edge panels 60 and 62, respectively.

It is noted that the folding is accomplished through hinge lines formed by cut scores. The regular cut scores with the cut extending through all the liners and fillers except the bottom liner are denoted by numeral 94 while the reverse cut scores with the cut extending through all the liners and fillers except the top liner are denoted by numeral 96. The corner pad is now formed with a channel in cross-section extending lengthwise in two related legs on exterior edge panels 60, 62.

Two remaining steps are now performed, one in which additional edge panels 98, 100, 102 are folded on exterior edge panel 60 about hinge lines formed by cut scores 104, and the other in which edge panel 62 with the channel thereon is folded at a right angular relation to edge panel 60 about the hinge line formed by cut score 64 thereby completing the corner pad as shown in Fig. 6.

Although there are only three additional edge panels 98, 100, 102 shown attached to edge panel 60, it should be noted that any number of additional panels can be added to edge panel 60 depending on the desired thickness of the corner pad and the particular shape of the mirrors. Also, any number of additional edge panels can be attached to panel 12 or 14 in the modification shown in Figs. 1-5, in order to accommodate various shapes of mirrors or to provide increased thicknesses on the edges.

A third variation of the invention is disclosed in Figs. 9-12. In this variation the corrugated paperboard comprises four corrugated fillers with liners placed between the fillers and on each face of the paperboard. There can also be provided on the inside of this corner pad a non-abrasive lining material 106 to protect the mirrors and like objects from scratches and other harmful treatment which may be received during shipment.

The assembled corner pad shown in Figs. 9 and 12 comprises edge protecting panels 108, 110 integrally hinged endwise about hinge line 112 and side protecting panels 114, 116 and 118, 120 integrally hinged sidewise to edge panels 108 and 110, respectively.

To form the corner pad from the blank shown in Figs. 10 and 11 the side panels 114, 116 and 118, 120 are folded in a right angular relation to edge panels 108, 110, respectively, about the hinge lines formed by reverse cut scores 122 to form a channel in cross-section that extends lengthwise on each of the two edge panels 108, 110. Next, the edge panels 108, 110 are folded about hinge line 112 in a right angular relation with respect to each other whereby two right angularly related legs are formed

for serving as a protective corner pad. It is noted that the blank is provided with a V-shaped notch on both sides of said blank and that these notches allow the channels to meet in an overlying relation as shown in Figs. 9 and 12.

It should be observed that the present railroad requirement of clearance between mirrors and the shipping container is $\frac{3}{4}$ ". The thickness of the corner pads shown in Figs. 9-12 is only $\frac{5}{8}$ " but with the increased thickness obtained by use of the non-abrasive lining material, the clearance between the mirrors and the shipping containers is extended to the required $\frac{3}{4}$ ". The lining material is not limited to use with the embodiment shown in Figs. 9-12, but can be used in any or all variations or modifications of the present invention.

It is believed that the assembly of the protective corner pads is sufficiently clear from the foregoing description and it is apparent that a simple and economical corner pad is obtained which has some resilience and yet will be sufficiently rigid as to space the mirrors from the side walls and bottom of the shipping container in addition to spacing the mirrors from each other.

Various modifications and changes may be made in the details of the constructions illustrated without departing from the spirit of the invention as set forth in the appended claims.

I claim:

1. A blank for forming a protective corner pad for glass mirrors and the like, said blank being formed of corrugated paperboard and comprising edge protecting panels integrally hinged endwise along a fold line for folding to right angular relation with respect to each other, first pairs of side protecting panels foldably connected in sidewise series at one side of each of said edge protecting panels for inward doubling and folding in respective right angular relation thereto along fold lines parallel to the side of said edge protecting panels,

one of said pairs of side protecting panels being spaced from the fold line between the edge protecting panels a distance substantially equal to the width of said side protecting panels, and connecting panels foldably joined in sidewise series with each of said first pairs of side protecting panels and having second pairs of side protecting panels likewise foldably joined respectively thereto along fold lines parallel to the side of said edge protecting panels, said connecting panels being proportioned for disposition at the respective inner faces of said edge protecting panels in an extent locating said second pairs of side protecting panels for doubling and folding in right angular relation at the other side of said edge protecting panels in respective opposed relation to said first pairs of side protecting panels, whereby said panels may be disposed to form a channel in cross-section that extends lengthwise in right angularly related legs.

2. A protective corner pad for glass mirrors and the like as defined in claim 1 and further characterized in that at least one of said edge protecting panels has foldably joined thereto in sidewise series, at the side thereof opposite the side at which said first pair of side protecting panels is joined, a plurality of cushioning panels for doubling coextensively at the outer face of said edge protecting panel.

References Cited in the file of this patent

UNITED STATES PATENTS

933,105	Norton	Sept. 7, 1909
1,667,279	Allen	Apr. 24, 1928
1,786,189	Bowersock	Dec. 23, 1930
1,998,515	Miller	Apr. 23, 1935
2,160,221	Masters et al.	May 30, 1939
2,514,833	Bergeron	July 11, 1950
2,746,667	Murphy	May 22, 1956