

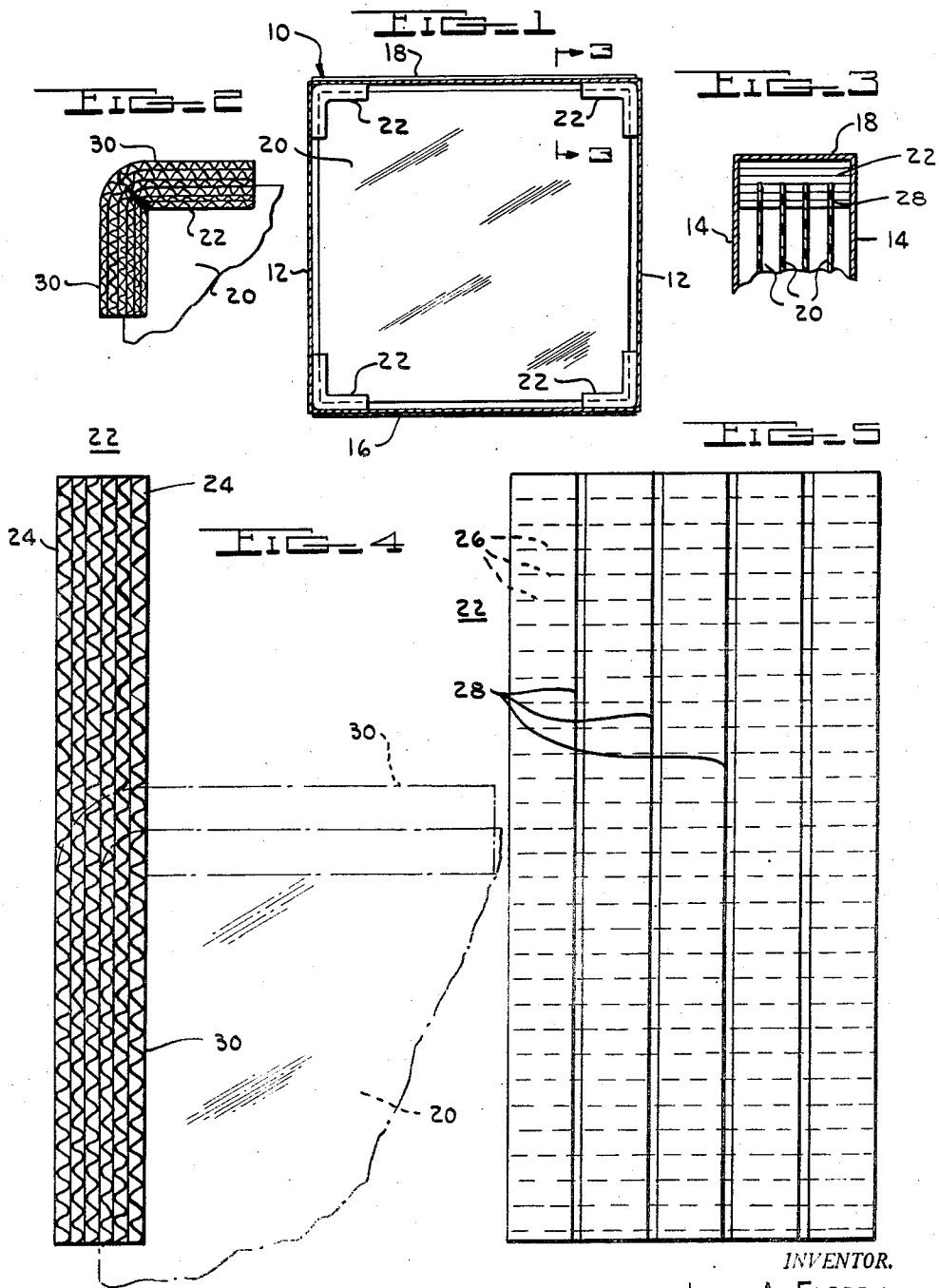
June 12, 1951

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2,556,529

SHIPPING CARTON FOR GLASS

Filed July 9, 1948



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2,556,529

SHIPPING CARTON FOR GLASS

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Application July 9, 1948, Serial No. 37,947

2 Claims. (Cl. 206—62)

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This invention relates to protecting containers for fragile and breakable articles such as glass and particularly to a shipping carton for glass sheets and the like.

An important object of this invention is to provide an improved shipping container or carton for glass sheets or similar fragile and breakable articles which is formed of inexpensive parts yet is highly efficient in preventing breakage of the glass content thereof. Another important object of this invention is to provide an improved carton structure for shipping glass sheets or panes or the like, which protectingly encloses the contents in such a manner that the edges of the glass panes are spaced on all sides from the outside walls of the carton and from one another and are cushioned by means solely engaging the corners of the glass panes leaving the balance thereof free. A further important object of the invention is to provide a shipping container formed entirely of fiber board material including the outside protecting shipping carton and corner engaging cushioning pads adapted to support the glass panes in the carton in spaced relationship to the walls thereof.

In carrying out the invention a shipping container for the purpose described above comprises a carton of fiber board material having a cross section in the plane of the glass sheets contained therewithin which is slightly oversized the latter so that the panes may be centrally mounted in the carton with a clearance between the edges thereof and the inside walls of the carton. Novel corner engaging pads of corrugated fiber board are shaped for snug fit in the inside corners of the carton and are further shaped in a novel manner for engaging and supporting the glass panes in spaced relationship to the wall of the carton and to one another. An important feature of invention is the construction of the pads themselves. These pads are formed in a novel manner of a plurality of corrugated fiber board sheets superimposed upon one another and secured into a laminated unitary structure. Each pad is provided with one or more slots on one side thereof for receiving the edges of the glass panes and is bent in such a manner that it snugly fits the corner area of the carton in which it is disposed with the slots opening inwardly and receiving the corner edges of the panes. When mounted in a shipping carton, the corner pads cooperate together to cushion the glass panes and hold the same in spaced relationship to one another and to all of the walls of the carton.

Various other objects, advantages and meri-

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torious features of the invention will become more fully apparent from the following specification, appended claims and accompanying drawings wherein:

Fig. 1 is a vertical cross section through a shipping carton constructed in accordance with this invention and showing the manner of mounting glass sheets therewithin,

Fig. 2 is an enlarged detail side view of one of the corner pads of the shipping carton of Fig. 1,

Fig. 3 is a detail sectional view taken along line 3—3 of Fig. 1 showing the construction and mounting of one of the corner pads in the carton,

Fig. 4 is an enlarged side elevation of a pad constructed in accordance with this invention and showing in full lines its initial formation and showing in broken line the bent formation assumed when mounted in a carton, and

Fig. 5 is a plan view of corner pad of Fig. 4 showing the same in unbent state and the relation of the glass pane receiving grooves to the corrugations of the pad.

Referring to the drawing, the illustrated embodiment of the invention comprises a shipping carton generally indicated at 10 which is preferably of rectangular formation as shown and composed of four side walls and a top and a bottom wall. Two opposite side walls are shown at 12—12 in Fig. 1 and the remaining two opposite side walls are shown at 14—14 in Fig. 3. The bottom 16 is normally closed and sealed as in conventional practice and the top 18 is formed of foldable flaps which are open at the time the contents to be shipped are placed in the carton and are thereafter closed and secured against opening. Depending upon the size of the glass panes or other similar articles to be shipped, the carton selected has a cross sectional dimension in the plane of the glass which is slightly oversized the latter. Thus when the glass sheets are mounted centrally within the carton the edges thereof are spaced from the walls of the carton on all sides of the sheets.

The carton preferably has such a depth that it may receive a plurality of glass sheets or panes, one such sheet being indicated at 20 in Fig. 1. The latter when properly installed in the carton has its edges spaced from the walls of the carton as shown in Fig. 1. Usually the carton will be of a size to receive a plurality of these glass sheets assembled in parallel spaced apart relationship as shown in Fig. 3.

To support the glass sheets within the carton against breakage or damage, there are provided

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novel corner cushioning members or pads each associated with a corner of glass sheet and so related thereto and to the walls of the carton that they space the sheets away from the walls of the carton. Four such corner pads are employed in the shipping carton and they are shown in properly assembled relationship at 22 in Fig. 1. In general, each corner pad is bent intermediate its ends to provide two angularly related end sections which when mounted in the carton extend at right angles to one another. The corner pads snugly fit the corner areas of the carton in which they are received and are provided on their inner sides with means for engaging and supporting the glass sheets in spaced relationship to one another and to the walls of the carton.

Each corner member or pad is similarly formed and as shown in Figs. 4 and 5 comprises a plurality of corrugated fiber board sheets of substantially the same size arranged side-by-side against one another and secured together into a laminated unitary structure. Each corrugated sheet of the corner pad is designated by the reference numeral 24 as particularly shown in Fig. 4. In the illustrated embodiment of the invention, six such sheets of corrugated fiber board are stacked together in facial contact with one another and secured to one another by any suitable adhesive material. Thus assembled and secured together each pad forms a thick, dense assembly of corrugated sheets having yieldable cushioning characteristics in the dimension of its depth.

The corrugated sheets making up each corner pad are assembled together with their corrugations all extending in the same direction or parallel to one another as indicated by the broken lines 26 in Fig. 5. The corner pad thus formed is cut or otherwise shaped so that it assumes the rectangular formation shown in Fig. 5 and has a width such that it snugly fits between the side walls 14—14 of the carton as shown in Fig. 3. Thus mounted in the carton, the corner pad is held against lateral movement therein.

Prior to assembly in the carton each pad is cut or otherwise provided with one or more grooves or slots 28 on one side thereof extending the full length of the pad. These slots have a depth less than the thickness of the corner pad and preferably approximate one-half thereof. In the illustrated embodiment of the invention these slots extend to a depth of three corrugated sheets 24, the balance of the sheets being uncut and retained in their original condition. The slots 28 each have a width substantially equal to the thickness of the glass panes to be shipped in the carton in order that the edge of each such sheets may be received in a slot in the manner shown in Fig. 3 and held against lateral play therein.

Each corner pad before installation in the carton is bent intermediate its ends on a line extending parallel to the corrugations 26. The bend is preferably half way between the opposite ends of the pad to form two end sections 30—30 of equal length. When assembled in the carton and snugly received therein, the end sections 30—30 of the pad extending at right angles to one another as shown in the drawing. The pad is bent in such a direction as to dispose the glass engaging slots 28 on the inner sides of the angle formed by the two end sections 30—30.

In the loading of the container of this invention prior to shipment, it is preferred to mount the pads on the corners of the glass panes and thereafter introduce the assembly as a unit edge-

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wise into the carton. However, the lower pair of pads 22—22 may first be inserted into the carton and fitted into engagement with the corner areas formed by the bottom 16 and the opposite side walls 12—12 as shown in Fig. 1. The glass panes 20 are then inserted edgewise into the carton with their lower corner portions received in the two lower pads. Thereafter the upper pair of pads 22—22 are inserted into the carton with the depending end sections thereof interposed between the side walls 12—12 and the corners of the glass panes, the latter being received in the grooves in the manner previously described. In any event whichever method of loading is pursued, when the flaps forming the top of the carton are folded to closed position, they engage the laterally extending end sections of the upper pair of corner pads and secure the same in the position assumed in Fig. 1.

The corner edges of the glass sheets are received in the slots 28 of the pads and since the latter extend to a depth less than the thickness of the pads the edges of the glass sheets are supported by the pads in spaced relationship to the walls of the carton on all four sides thereof. In the closed position of the carton the corner pads are incapable of lateral movement by virtue of their width being equal to the inside dimension between the side walls 14—14 of the carton and thus the glass sheets are held relatively immovable in the carton. In the event that the carton is subjected to shocks in transit such as being dropped from a height the corrugations of the pads form a resilient cushion for the glass sheets allowing a slight displacement of the sheets if necessary. The four pads 22 therefore cooperate together to hold the glass panes in spaced relationship to the walls of the carton and to one another and form resilient cushions preventing breakage of the glass under ordinary transportation conditions. The four corner pads serve as the sole means for supporting the glass panes in this manner and only engage the corners of the glass sheets leaving the balance of the glass panes free and unengaged.

What I claim is:

1. In combination with a plurality of similar size frangible panes of glass and the like, a shipping carton of fiber-board material enclosing said panes and having the interior dimension in the plane of the panes slightly oversize the latter, a yielding pad at each corner of the carton composed of a multiplicity of corrugated fiber-board sheets of the same size laid flat upon one another and secured together into a relatively thick laminated unitary structure with the corrugations of all the sheets extending parallel to one another, each pad being cut out to provide a plurality of spaced apart parallel grooves on one side thereof corresponding in number to the number of panes within the carton and extending perpendicularly to the corrugations of said sheets from one end to the opposite end thereof and to a depth approximately one-half the thickness of the pad, each pad further being bent intermediate its ends on a line parallel to the corrugations to form two end sections extending substantially at right angles to one another and in such a manner as to dispose the grooves on the inside of the angle formed by the end sections, said pads snugly fitting their respective corner areas of the carton with their side edges in abutment with the opposite side walls of the carton and with the grooves thereof aligning with one another and

receiving the corner edges of the panes enclosed within the carton.

2. A shipping carton for frangible panes of glass and the like comprising, in combination, a rectangularly shaped carton of fiber-board material, a yielding pad for each inner corner of the carton composed of a multiplicity of corrugated fiber-board sheets of the same size and laid flat upon one another and secured together into a relatively thick laminated unitary structure with the corrugations of all of the sheets extending parallel to one another, each pad being cut out to provide a plurality of spaced apart parallel grooves on one side thereof extending perpendicularly to the corrugations of said sheets and from one end to the opposite end of the pad and to a depth approximately one-half the thickness of the pad, each pad being bent intermediate its ends on a line parallel to the corrugations to form two end sections extending substantially at right angles to one another and such that the grooves are disposed on the inside of the angle formed by the end sections, said pads being so

dimensionally proportioned with respect to the interior of the carton as to snugly fit their respective corner areas of the carton and with the grooves thereof aligning with one another and opening inwardly of the carton.

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