

Jan. 8, 1957

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2,776,745

PACKAGING FOR WRAP-AROUND WINDSHIELDS

Filed July 8, 1954

3 Sheets-Sheet 1

Fig. 1.

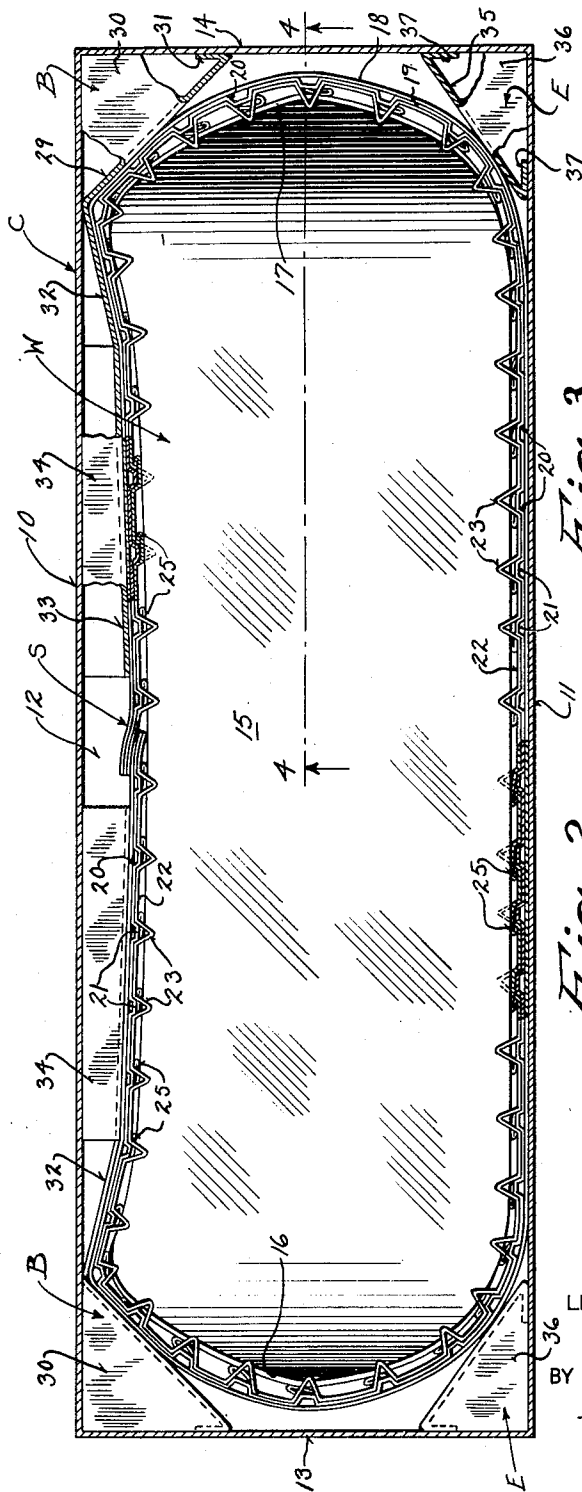


Fig. 3.

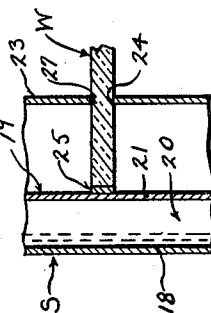
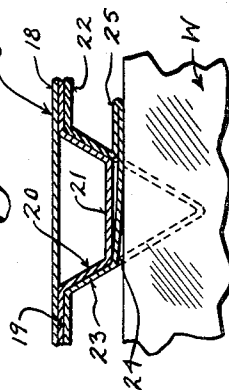


Fig. 2.



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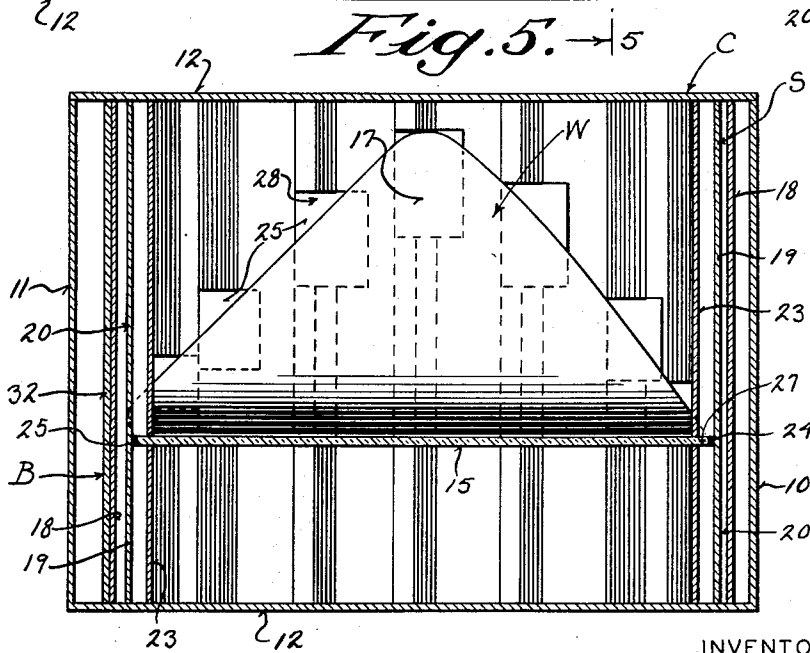
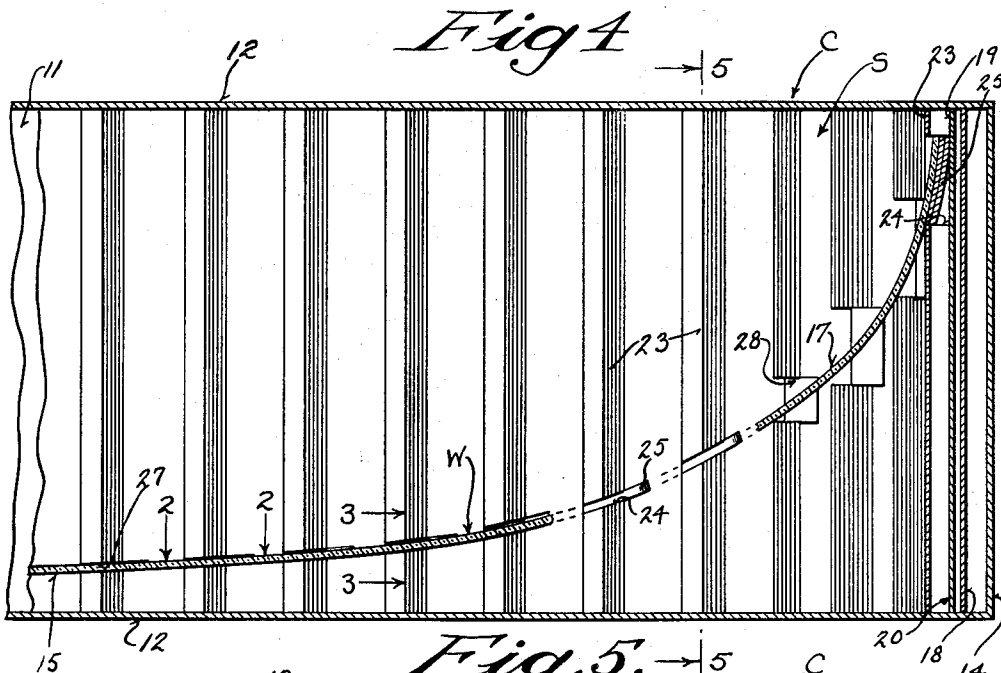
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PACKAGING FOR WRAP-AROUND WINDSHIELDS

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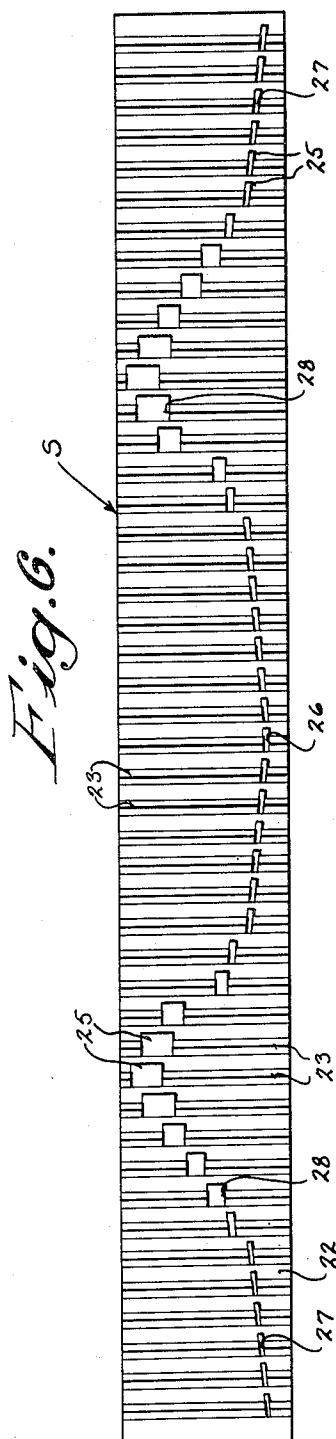


Fig. 8.

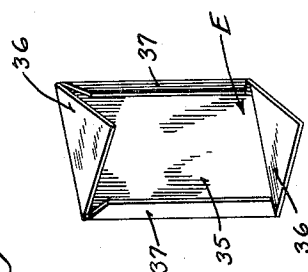
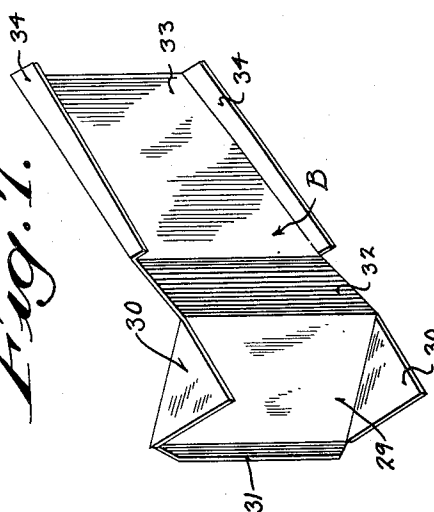


Fig. 7.



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PACKAGING FOR WRAP-AROUND WINDSHIELDS

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Application July 8, 1954, Serial No. 441,991

3 Claims. (Cl. 206—62)

This invention appertains to the packaging of fragile articles and more particularly to the packaging of automobile windshields, and rear window lights having curved back end wings commonly known to the trade as panoramic or wrap-around windshields and windows to prevent the breaking of such windshields and windows during shipping.

One of the primary objects of my invention is to provide an improved packaging strip for the peripheral edge of curved windshields and rear windows of automobiles and means for effectively supporting the windshield or rear window, as the case may be, with the packaging strip in a shipping carton.

In the prior Van Antwerpen Patents No. 2,504,473, issued April 18, 1950 (Figures 28 to 31), and No. 2,603,349, issued July 15, 1952, packaging strips for flat window glass were illustrated and described, but these are not capable of effective use around curved windshields or windows having curved back wings.

In packaging windshields and windows, a problem arises with the supporting and protecting of the curved end wings, in that the wings if subjected to certain stresses, tend to crack at their point of juncture with the body of the glass. While the glass has to be effectively supported in the carton from jars, for the best results, the wings must have in effect a floating suspension within the carton, but still held against undue vibration.

It is, therefore, another prime object of my invention to provide a novel packaging strip having a width corresponding to the width of a carton with which it is to be associated having means for snugly receiving the peripheral edge of the body of the windshield and means for lightly but resiliently supporting the wings.

A further salient object of my invention is the provision of a packaging strip having notches formed therein for receiving the peripheral edge of the windshield with an improved cushioning means in the notches for resiliently supporting the windshield, the notches being formed in the strip in a novel manner to conform to the curvature of the windshield and end wings thereof.

A still further important object of my invention is the provision of novelly formed cushioning and filler blocks for cooperation with the packaging strip and carton to conform to the curvature of the glass and to effectively aid in the supporting of the end wings of the glass.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts as will be hereinafter more specifically described and claimed and illustrated in the accompanying drawings, in which drawings,

Figure 1 is a longitudinal sectional view through a carton showing a curved wrap-around windshield therein cushioned and protected by the packaging strip and cushioning and filler blocks, parts of the packaging strip and cushioning and filler blocks being shown broken away and in section to illustrate structural detail;

Figure 2 is a fragmentary detail sectional view taken on the line 2—2 of Figure 4, looking in the direction of the arrows, illustrating the formation of one of the slots for receiving the peripheral edge of the body portion of the windshield and the cushioning support resulting therefrom;

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Figure 3 is a detail fragmentary sectional view taken at right angles to Figure 2 and on the line 3—3 of Figure 4, looking in the direction of the arrows illustrating the formation of one of the slots and cushioning means therein;

Figure 4 is a fragmentary longitudinal sectional view taken at right angles to Figure 1, and on the line 4—4 of Figure 1, looking in the direction of the arrows, the view showing the novel arrangement of the slots in the packaging strip, the view being on a larger scale than Figure 1.

Figure 5 is a transverse sectional view through the carton taken on the line 5—5 of Figure 4, looking in the direction of the arrows and illustrating more particularly the novel means for supporting an end wing of the windshield;

Figure 6 is a plan view of the packaging strip in its flat, laid-out condition before being placed around the peripheral edge of a windshield, the view showing the novel arrangement and formation of slots for receiving the edge of the windshield, the view being on a smaller scale than the preceding figures;

Figure 7 is a detail perspective view of one of the combination corner and side cushioning and filler blocks, and

Figure 8 is a detail perspective view of one of the corner cushioning and filler blocks.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter C indicates a shipping carton for receiving a curved wrap-around or panoramic windshield W protected by the novel packaging strip S and the combination corner and side cushioning and filler blocks B and end corner cushioning and filler blocks E.

The carton C itself forms no part of the present invention and can be constructed in any desired manner from corrugated board, cardboard or the like, and as illustrated, the same includes top and bottom walls 10 and 11, side walls 12, and end walls 13 and 14. The size of the carton depends upon the size of the windshield being shipped.

The windshield W is of a type commonly referred to in the trade as panoramic or wrap-around and includes a curved main body portion 15 and curved back end wings 16 and 17 which gradually taper toward their terminals. While I have specifically referred to a windshield, it is to be understood that this term is utilized in its broad sense and for the purpose of this application comprehends wrap-around rear automobile windows and the like.

The packaging strip S forms one of the prime features of this invention and is formed and constructed in such a manner as to engage entirely about the peripheral edge of the windshield. The same is preferably formed in one continuous piece and is placed around the windshield with its ends slightly overlapped as illustrated in Figure 1. The strip S has a width corresponding exactly to the width of the carton C with which it is to be associated so that the longitudinal edges of the strip will abut against the side walls 12 of the carton. The strip S itself includes an outer base ply 18 formed from a flat length of material such as fiber board, corrugated board or the like, and an intermediate ply 19 preferably formed from corrugated board. At spaced points throughout the length of the intermediate ply, the same is provided with transversely extending U-shaped projections 20 having flat outer supporting faces 21. The intermediate ply 19 between the projections 20 is secured to the base ply 18, in any desired way such as by the use of an adhesive or metal stitches. The strip S also includes an inner ply 22 having formed thereon at equidistantly spaced points transversely extend-

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ing V-shaped projections 23. The inner ply 22 between the V-shaped projections 23 is firmly secured to the intermediate ply 19 in any desired way, such as by the use of an adhesive or metal fastening elements. As best shown in Figures 1, 2 and 3, the U-shaped projections 20 of the intermediate ply are received with the V-shaped projections 23 of the inner ply and the crests of the V-shaped projections are provided with slots 24 for receiving the peripheral edge of the glass W. The material between the walls of the slots 24 is broken down to provide a double thickness of material which is in the nature of a cushioning tongue 25. This tongue 25 lies over the flat outer walls 21 of the U-shaped projections 20 and projects laterally beyond both the V-shaped projections 23 and the U-shaped projections 20. By referring to Figures 2 and 3, it can be seen that the edge of glass W is supported by the double thickness of the cushioning tongues 25 and the U-shaped projections 20. Now by referring to Figure 6, it can be seen that the slots or notches 24 extend in a general longitudinal direction of the strip S, but that these notches or slots are in somewhat of a serpentine formation so that when the strip is wrapped around the edge of the glass, the notches will follow and receive the peripheral edge of the curved glass. Particular attention is directed to this fact. This serpentine formation defines an intermediate main curved line of notches now indicated by the reference character 26 in Figure 6 and end curved lines of notches indicated by the reference character 27. The lines of notches 26 and 27 receive the edges of the body portion 15 of the windshield (see Figure 1). Between the curved lines of notches 26 and 27 are sharply curved lines of notches indicated by the reference characters 28 in Figure 6, and these lines of notches 28 receive the end wings 16 and 17 of the windshield. Now in accordance with my invention, the notches constituting the lines of notches 28 gradually increase in width toward the curved peaks of the lines and hence when the strip S is wrapped around the peripheral edge of the windshield, the curved wings 16 and 17 of the windshield are received within the wide notches of the lines of notches 28 and the wings are lightly but resiliently supported. This is in contrast to the notches of the lines of notches 26 and 27 in which the side walls of these notches firmly engage the opposite faces of the body of the windshield to prevent lateral shifting thereof. By referring to Figures 4 and 5, it can be seen that the end wings 16 and 17 are received at their edges in the notches of the lines of notches 28 and engage the cushion tongues 25 and that the side walls of the slots limit movement or vibration of the end wings. The pointed terminals of the end wings have their outer faces resting directly on the cushion tongues 25 of the outermost slots of the lines of slots 28.

Due to the curvature of the windshield and the shape of the end wings thereof, it is important to keep the strip S in proper contact with the edge of the windshield at all times, and to accomplish this and to effectively support the end wings I utilize the combination corner and side cushioning and filler blocks B and the end corner cushioning and filler blocks E.

The combination corner and side cushioning and filler blocks B are preferably, but not necessarily formed from cardboard, corrugated board or the like and can be constructed in different manners, but in accordance with my invention I preferably form the same of a single sheet of corrugated board. As best illustrated in Figure 7, the combination corner and side cushioning and filler block B includes an inner flat wall 29 having formed on its side edges triangular shaped legs 30. These triangular legs 30 fit snugly within the upper end corners of the carton C and hold the flat wall 29 against the packaging strip S and also against the wings 16 and 17 of the windshield W directly at one side of the point of juncture of a wing with the body 15 of the windshield. Formed on the outer edge of the flat wall 29 is a flap

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31 which lies between the triangular shaped legs 30 and this flap forms a brace for these legs and prevents collapsing of the legs inward. Formed on the inner edge of the flat wall 29 is a connecting flap 32 carrying an elongated flat wall 33 for the side of the carton and the edges of this wall 33 have formed thereon parallel flat legs 34 and the longitudinal outer edges of these flat legs engage the top wall 10 of the carton and hold the flat wall 33 down against the packaging strip S. By again referring to Figure 1, it can be seen that when the combination corner and side cushion and filler blocks B are properly placed in the upper corners of the carton, that the flat walls 33 of the opposite blocks B project toward one another and terminate short of the transverse center of the carton directly on opposite sides of the point where the ends of the strip S over-lap.

The corner filler and cushion blocks E are provided for the lower corners of the carton, and these blocks include a flat wall 35 and this wall has formed thereon at its opposite ends triangular shaped legs 36. These legs 36 fit in the lower corners of the carton and hold the flat wall 35 against the cushion strip and this in turn, holds the strip S in proper contact with the wings 16 and 17 and forms support for the wings. The side edges of the flat wall 35 have formed thereon bent back flaps 37 and the terminals of these flaps 37 engage the legs 36 to prevent inward collapsing thereof.

From the foregoing description, it can be seen that I have provided a novel and simple means for efficiently supporting a wrap-around windshield or the like within a carton and in such a manner that the curved end wings of the windshield will effectively be suspended and protected against breakage.

Changes in details may be made without departing from the spirit or the scope of this invention, but what I claim as new is:

1. A packaging and cushioning strip for wrap-around windshields, comprising a base ply, an intermediate ply secured to the base ply and having equidistantly spaced transversely extending projections, and an inner ply secured to the intermediate ply having equidistantly spaced transversely extending projections receiving the first mentioned projections, said last mentioned projections having a row of serpentine notches for receiving the peripheral edge of the windshield; said notches gradually increasing in width at predetermined points to form seats for the curved end wings of the windshield.

2. A packaging and cushioning strip for wrap-around windshields comprising a base ply, and an inner ply secured to the base ply having equidistantly spaced transversely extending projections, said projections having a row of serpentine notches for receiving the peripheral edge of the windshield; said notches gradually increasing in width at predetermined points to form seats for the curved end wings of the windshield.

3. A combination cushioning and filler block for use in shipping cartons comprising a flat wall, outwardly directed triangular legs formed on the end edges of said wall adapted to engage the corners of a carton, a bend-back flap on the outer longitudinal edge of the flat wall engaging the inner surface of said legs to prevent the inward collapsing thereof, a second elongated flat wall adjacent said first flat wall having outwardly bent substantially rectangular side legs for engaging the carton, and a connecting flap secured to said first flat wall and said second elongated flat wall.

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