Nov. 12, 1957 L. D. VAN ANTWERPEN 2,812,855

CARTON FOR PANORAMIC AUTOMOBILE GLASS

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Fig. 1.

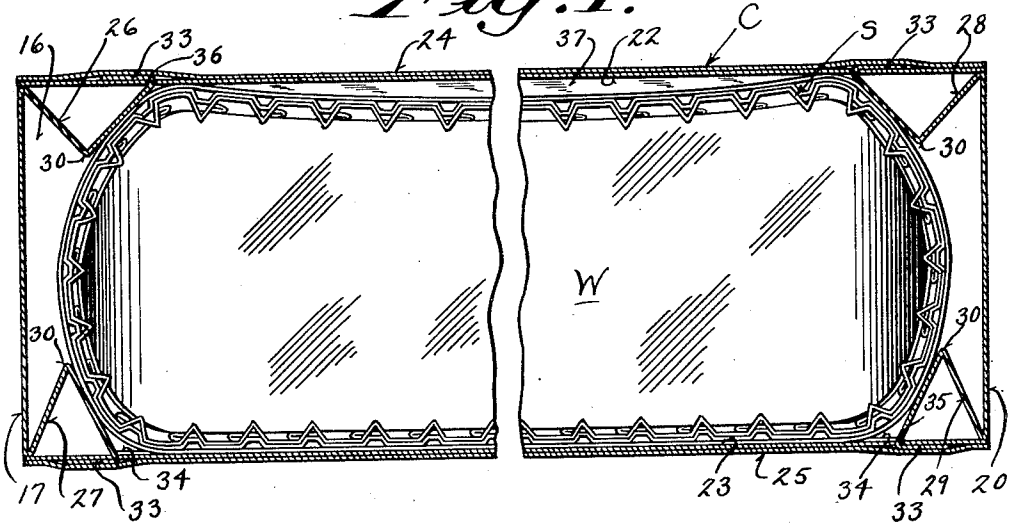
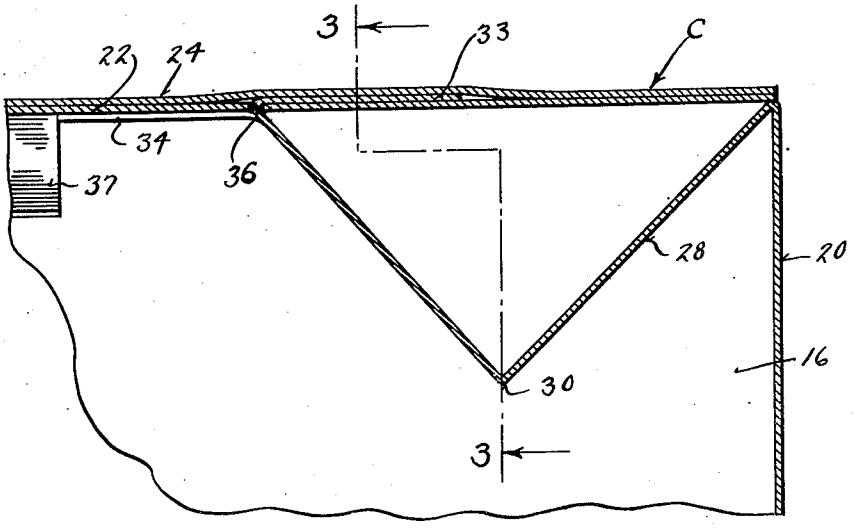


Fig. 2.



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CARTON FOR PANORAMIC AUTOMOBILE GLASS

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Fig. 3.

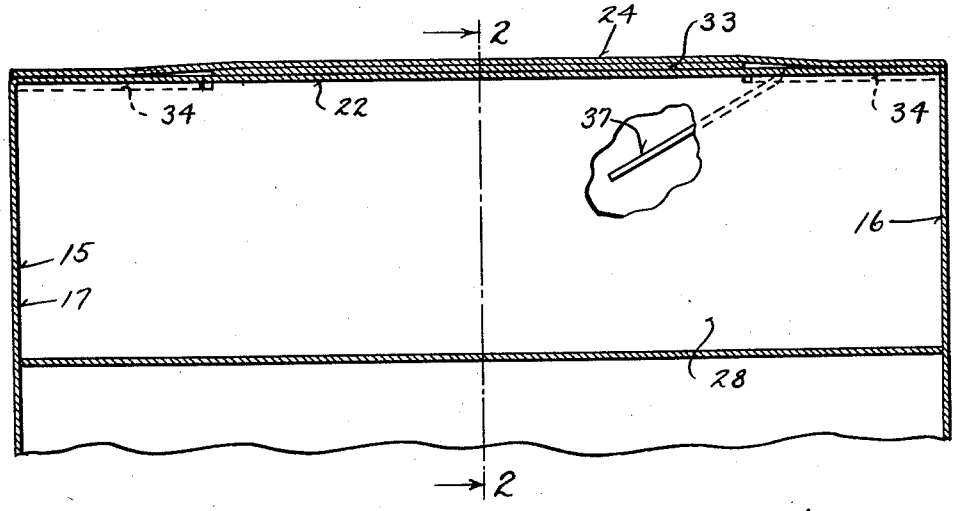
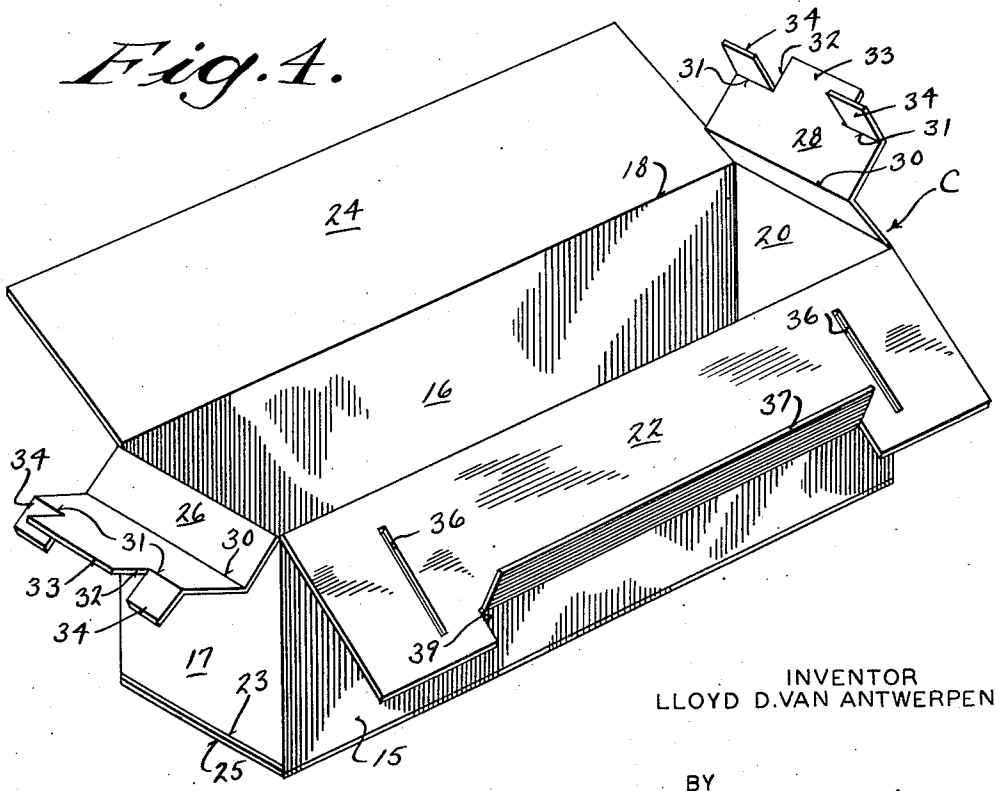


Fig. 4.



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CARTON FOR PANORAMIC AUTOMOBILE GLASS

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Fig. 5.

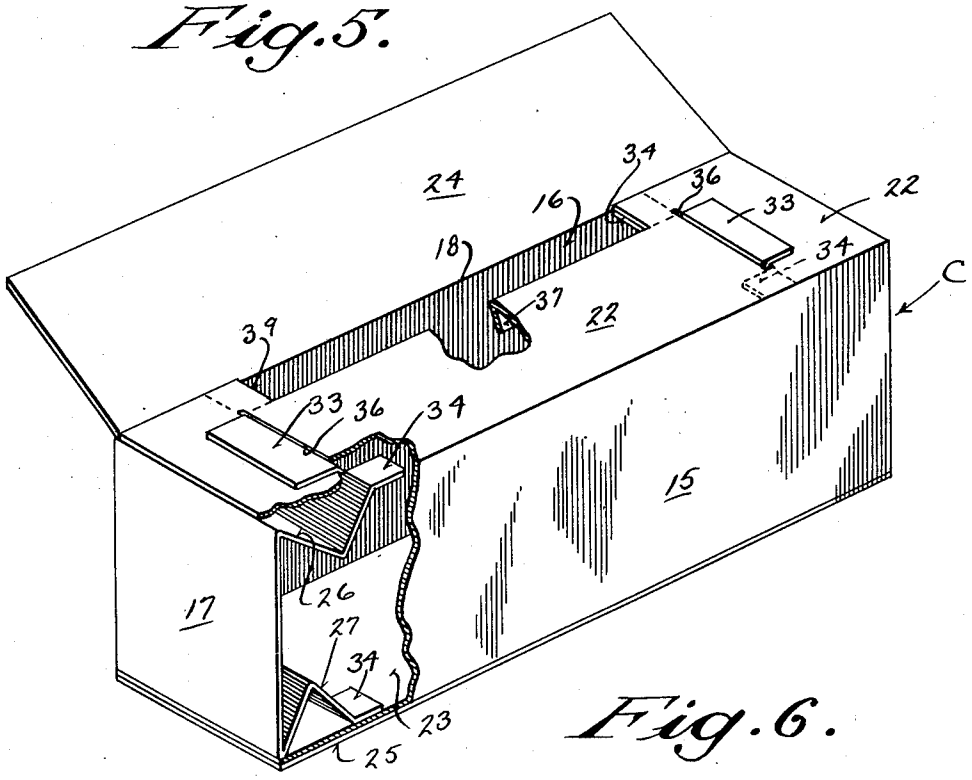

Fig. 6.

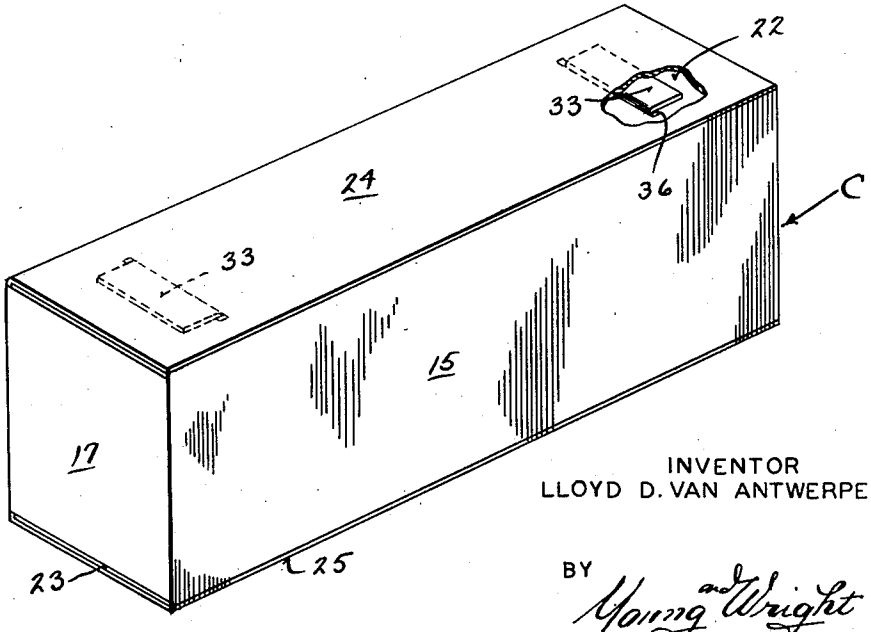

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Fig. 7.

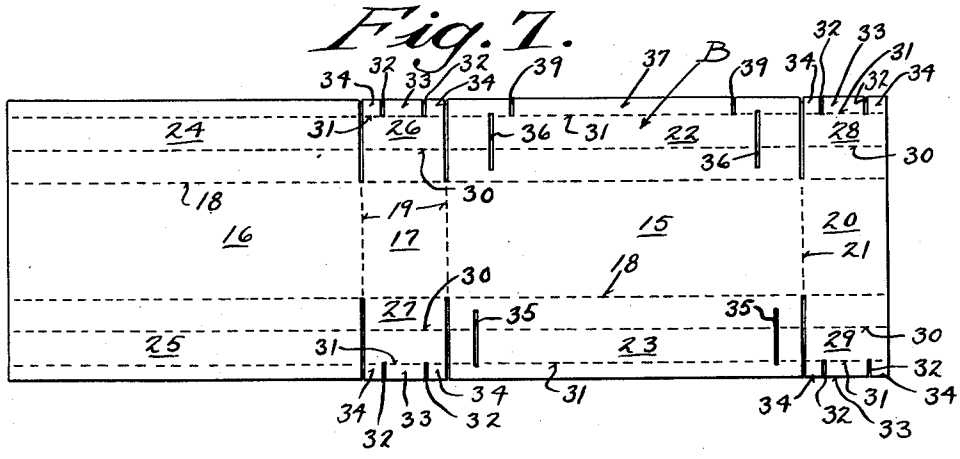
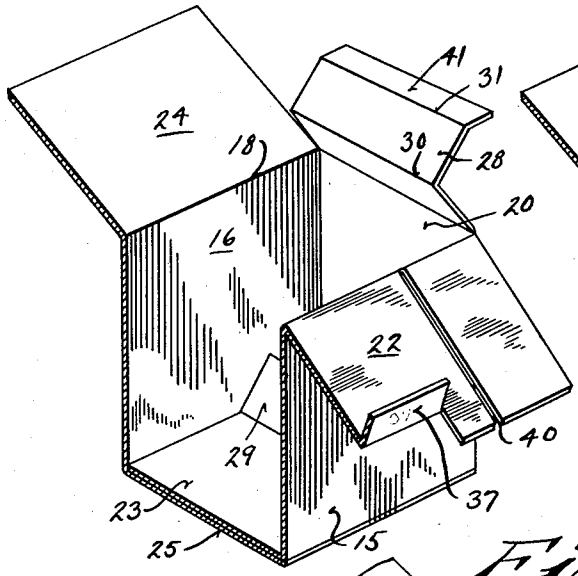


Fig. 8.

Fig. 9.



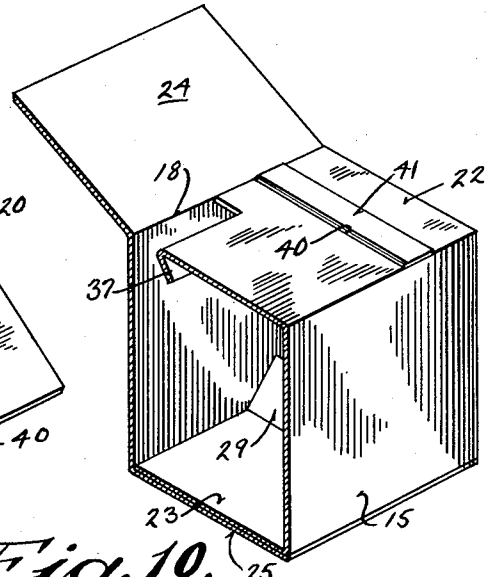
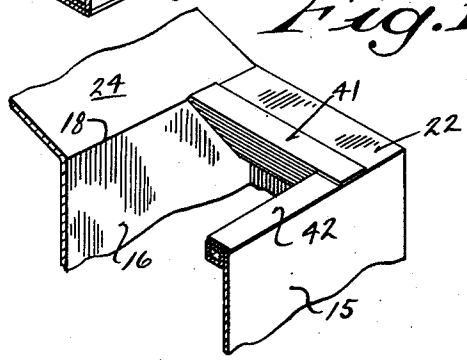


Fig. 10.



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United States Patent Office 2,812,855 Patented Nov. 12, 1957

2,812,855

CARTON FOR PANORAMIC AUTOMOBILE GLASS

Lloyd D. Van Antwerpen, Milwaukee, Wis.

Application June 14, 1955, Serial No. 515,394

8 Claims. (Cl. 206—62)

This invention appertains to the packaging of fragile articles, and more particularly to a novel carton for shipping curved windshields and like glass of the so-called "panoramic" or wrap-around type.

In my co-pending application, Serial No. 441,991, filed July 8, 1954, now matured into Patent No. 2,776,745 on January 8, 1957, I illustrated and claimed a novel cushioning strip for the edge of panoramic windshields and like glass, with insertable corner cushioning and filler strips for supporting the curved wings of the glass.

One of the primary objects of my invention is to provide a novel carton having as an integral part thereof means for effectively providing corner cushioning and filler blocks for supporting the curved terminals of automobile glass in a desired manner.

Another salient object of my invention is to provide means whereby the corner cushioning and filler blocks are connected with the body of the carton so that slipping and displacement of such blocks is prevented.

A further important object of my invention is to provide a shipping carton having extensions on the top and bottom end flaps thereof, with the extensions so arranged that the same can be readily folded during the setting up of the carton, and detachably connected with the closure flaps of the carton for forming the desired cushioning and filler blocks at the correct points.

A still further object of my invention is the provision of means formed on the inner closure flap of the carton of a resilient nature for engaging and holding the cushioning strip for the edge of the glass in proper place upon the closing and sealing of the carton.

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 vertical longitudinal sectional view through a complete carton showing the same in its closed position, with a panoramic windshield or like glass therein, the view illustrating the novel cushioning and corner blocks, and the resilient flange on the top inner clossure flap for engaging the peripheral cushion strip;

Figure 2 is an enlarged fragmentary detail longitudinal sectional view through one uper corner of the carton, with the carton in its folded condition, the glass being shown removed for the purpose of simplicity, the section being taken on the line 2—2 of Figure 3, looking in the direction of the arrows;

Figure 3 is a fragmentary transverse sectional view through the carton taken on the line 3—3 of Figure 2, looking in the direction of the arrows;

Figure 4 is a perspective view of the carton in its set up condition ready to receive a panoramic windshield or the like, with a peripheral cushioning strip thereabout;

Figure 5 is a view similar to Figure 4, but showing the carton in a partially closed position, with the extensions folded and in their correct positions to provide the

corner cushioning and filler blocks, parts of the view being shown broken away and in section;

Figure 6 is a view similar to Figures 4 and 5, but showing the carton in its complete closed, sealed position, parts of the figure being shown broken away and in section;

Figure 7 is a top plan view of the blank from which the carton is made;

Figure 8 is a fragmentary detail perspective view illustrating a slightly modified form of the carton, the carton being shown in its set up condition but prior to the closing and sealing thereof;

Figure 9 is a view similar to Figure 8, but showing the carton in its partially closed position, and

Figure 10 is a detail fragmentary perspective view illustrating another and preferred form of the bent resilient flange on the inner closure flap of the carton for engaging and holding the peripheral cushioning strip of the glass.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter C generally indicates my improved carton and B (Figure 7) a blank from which the carton can be formed.

The carton C includes like side walls **15** and **16** connected by an end wall **17**. Referring to Figure 7, it can be seen that the blank B is scored longitudinally, as at **18**, to define the side walls **15** and **16**, and scored transversely, as at **19**, to define the connecting end wall **17**. One transverse edge of the side wall **15** has formed thereon an end wall **20**, and this end wall is defined by a transverse score line **21**.

Now referring to the blank B, from the description so far, it can be seen that the blank is first folded on the score lines **19** so that the walls **15** and **16** will project at right angles therefrom, and in spaced parallel relation to one another, after which the end flap **20** is bent on the score ine **21** at right angles to the side wall **15** and parallel to the end wall **17**. At this time, the free edge of the end wall **20** can be secured to the outer edge of the end wall **16** by heavy adhesive tape. Formed on the longitudinal edges of the side wall **15** and defined by the longitudinal score lines **18** are inner top and bottom closure flaps **22** and **23**, and these flaps are adapted to be bent inwardly over the side walls on said score lines **18**. Formed on the longitudinal edges of the side wall **16** are top and bottom outer closure flaps **24** and **25**. These flaps are also adapted to bent inwardly on the longitudinal score lines **18**.

Now in accordance with my invention, the upper and lower edges of the end walls **17** and **20** have formed thereon extensions **26**, **27**, **28** and **29**. By referring to Figure 7, it can be seen that the extensions **26** and **27** are carried by the top and bottom transverse edges of the end wall **17**, and that the extensions **28** and **29** are carried by the upper and lower transverse edges of the end wall **20** and that the extensions are initially bent inwardly on the score lines **18**.

All of the extensions **26**, **27**, **28** and **29** are scored transversely intermediate their opposite ends, as at **30**, and these score lines **30** define means for facilitating the bending of the extensions intermediate their ends to define inwardly projecting substantially V-shaped cushioning corner blocks for supporting the glass at the curved winged terminals thereof, as will later appear. The score lines **30** are only used to facilitate the bending of the extensions **26**, **27**, **28** and **29**; however, in the blank, these score lines extend longitudinally of the entire blank, in that it is easier to score the blank in its entirety than to merely score the extensions **30**. Consequently, the score lines **30** on the closure flaps **22**, **23**, **24** and **25** serve no useful function.

The extensions 26, 27, 28 and 29 are also scored or weakened transversely adjacent to, but spaced from their outer ends, as at 31, and these score lines 31 are disposed a considerable distance from the score lines 30. The edges of these extensions are provided with inwardly directed spaced slots 32 and the score lines 31, in conjunction with the slots 32, define a central tongue 33 and side tabs 34. The tabs 34 are bent on the score lines 31 for a purpose, which will later appear. The score lines 31 can extend the full length of the blank B to lower the cost of manufacture.

Now considering that the blank B is partially folded and set up to provide the spaced parallel side walls 15 and 16, and the end walls 17 and 18, then the bottom inner flap 23 is folded inwardly over the folded extensions 27 and 29 and at this time the central tongues 33 of these extensions are inserted in transversely extending slots 35 cut in the bottom wall flap 23 and the side tabs 34 are bent on their score lines 31 and placed on the inner surface of the inner wall flap. The outer bottom wall flap 25 is now folded into place and secured in position by a suitable adhesive or adhesive tape. The desired glass, such as a panoramic windshield W (see Fig. 1), is now ready to be placed in the carton C and the edge of this glass is encased in a cushioning and packaging strip S. This strip S is illustrated, described and claimed in my mentioned, co-pending application. The folded extensions 27 and 29 abut the cushioning strip and these extensions form cushioning filler blocks for the lower corners of the wings of the windshield W.

The carton is now ready to be sealed and the inner top wall flap 22 is folded down with the extensions 26 and 28 folded into their desired shape. The tongues 33 on the extensions 26 and 28 will pass through transversely extending slots 36 cut in the inner top wall flap 22 and the side tabs 34 of these extensions rest against the inner surface of this inner top wall flap. The outer top wall flap 24 is then folded over the inner flap 22 and is sealed in position by a suitable adhesive or heavy adhesive tape. The folded extensions 26 and 28 engage the cushioning strip S and function to hold the strip in place and the folded extensions define corner cushioning blocks for supporting the upper ends of the wings of the windshield W.

The entire structure forms an effective means for holding the glass in the carton against movement and breakage and the folded extensions are securely held in place against displacement and these extensions absorb shock and admirably perform their function of filler blocks. The extensions are so-shaped as to conform to the configuration of the windshield or other glass being shipped and it is to be noted that the lower folded extensions 27 and 29 are of a slightly different shape than the upper folded extensions 26 and 28.

In order to further aid in holding the cushioning strip S in place at the top of the glass and to give an additional resilient support, the inner top wall flap 22 can have bent down therefrom on its longitudinal edge a flexible wing 37 and upon the bending inwardly of this wing the same will engage the strip S, as best shown in Figure 1, and hold the strip in place. The wing 37 (see Figure 7), can be defined by a part of one of the longitudinally extending score or weakening lines 31 and inwardly directed slots 39. The slots 39 extend inwardly from the inner edge of the flap 22 to the score line 31. This wing 37 can take different forms, as will be later set forth.

This wing 37 has also another important function namely, upon the packing of the glass in the carton, the glass can be conveniently inspected at different points during transit, by merely breaking the seal for the outer top wall flap and by lifting up the wing 37. After inspection the wing 37 can be lowered and the outer top wall flap can be swung back in place and sealed by tape. By operating the wing 37, it is unnecessary to disturb the

tongues 33 of the transversely extending cushioning members.

The ends of the extensions 26, 27, 28 and 29 can be detachably connected with the inner bottom and top wall flaps 23 and 22, in different ways, and in Figures 8 and 9, I have shown another of these ways. In this form, the inner bottom and top wall flaps are slotted transversely their entire width, as at 40, and the extensions instead of being provided with central tongues and side tabs, are provided with a continuous transversely extending tongue 41. This tongue 41 is inserted in the slot 40 upon the folding of the blank.

In Figure 10, I have shown another means for engaging the cushioning strip S along the top edge of the glass and in this form the inner top flap between the slots 40 is folded to provide a longitudinally extending tube 42 of a square shape in cross-section. The tube extends into the body of the carton and against the adjacent portion of a cushioning strip S.

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

1. A carton comprising spaced parallel side walls, end walls and top and bottom walls, each of said top and bottom walls including an inner closure flap and an outer closure flap, transversely extending cushioning blocks depending from the upper edges of the end walls disposed in the carton at the ends of the carton only, and extensions on the cushioning blocks interlocked with the inner flap for holding said cushioning blocks against accidental displacement.

2. A carton comprising spaced parallel side walls, end walls and top and bottom walls, said top and bottom walls each including inner and outer overlapping closure flaps, cushioning blocks formed on the upper edges of the end walls disposed in said carton and extending transversely thereof and entirely across the carton at the ends of the carton, said inner closure flaps having transversely extending slots, and tongues formed on the inner edges of said cushioning blocks inserted in said slots for holding said cushioning blocks against accidental displacement.

3. A carton comprising spaced parallel side walls, end walls, and top and bottom walls, said top and bottom walls each including inner and outer overlapping closure flaps, cushioning blocks formed on and depending from the upper ends of the end walls disposed in said carton and extending transversely of the carton at the ends thereof, said inner closure flaps having transversely extending slots, and central tongues and side tabs formed on the inner ends of said cushioning blocks, said tongues being disposed through the slots and said side tabs engaging the inner faces of said inner closure flaps whereby to hold the cushioning blocks against accidental displacement.

4. A carton comprising spaced parallel side walls, end walls and top and bottom walls, said top and bottom walls each including inner and outer overlapping closure flaps, cushioning blocks formed on and depending from the upper edges of the end walls disposed in said carton and extending transversely thereof at the ends of the carton, said inner closure flaps having transversely extending slots extending the full width thereof, and bendable tongues formed on the inner edges of said cushioning blocks and extending the full width of the blocks disposed in the slots of the inner flaps for holding the cushioning blocks against displacement.

5. A package for shipping curved glass of the panoramic windshield type comprising a carton, a curved windshield in the carton including a main curved body portion and wings, a protecting cushioning strip wrapped around the edge of the glass, the carton including side walls, end walls and top and bottom walls, each of said top and bottom walls including inner and outer overlapping closure flaps, inwardly extending cushioning blocks formed on the upper and lower edges of the end walls disposed in

said carton and extending transversely thereof engaging and holding the cushioning strip around the glass and means detachably securing the outer ends of the cushioning blocks to the inner closure flaps.

6. A package as defined in claim 5 and a longitudinally extending folded portion formed on one of the inner flaps and projecting into the carton and engaging said cushioning strip between certain of the cushioning blocks.

7. A carton for shipping automobile glass of the wrap-around type formed from a single blank of sheet material comprising longitudinally extending spaced parallel side walls, top and bottom walls, and end walls connecting the side walls, and transversely extending V-shaped cushioning and supporting blocks for the glass carried solely by the upper edges of the end walls and depending therefrom into the carton, said V-shaped cushioning and supporting

blocks extending the full width of the carton and engaging the inner faces of the side walls of the carton.

8. A carton for shipping automobile glass of the wrap-around type as defined in claim 7, and tabs on the outer longitudinal edges of said transversely extending V-shaped cushioning and supporting blocks extending at an angle to the blocks and engaging certain walls of the carton whereby to hold the cushioning blocks in their folded V-shape.

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