

Dec. 27, 1966

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3,294,223

CORNER SUPPORT FOR PACKAGING OF ARTICLES

Filed June 15, 1964

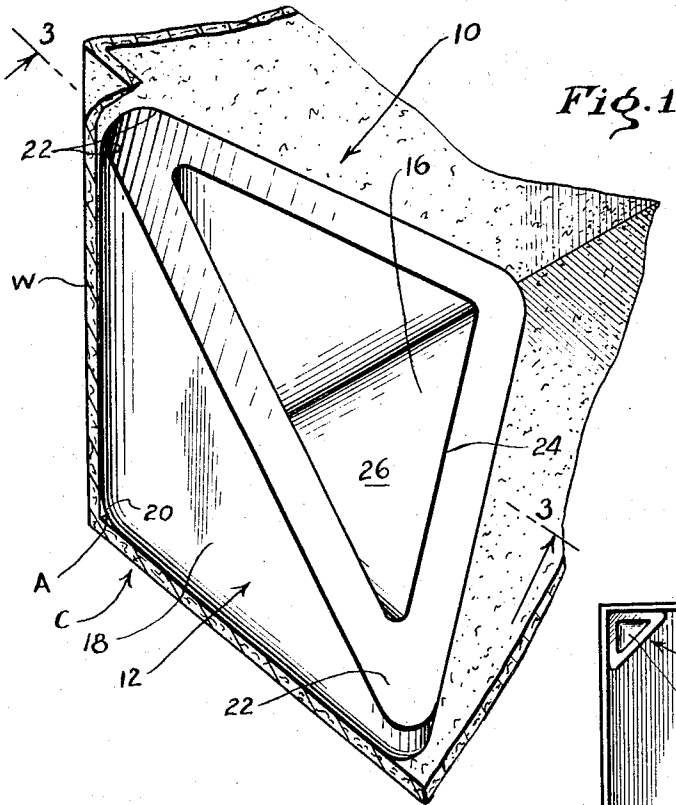


Fig. 2

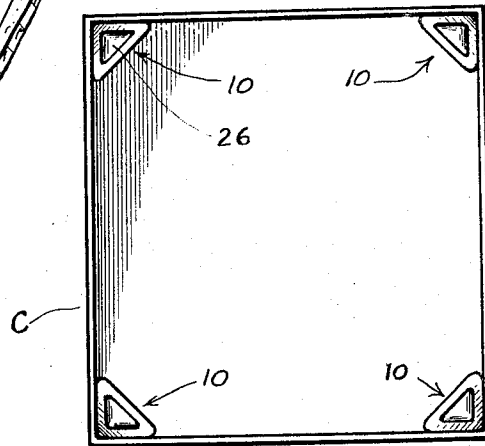


Fig. 3

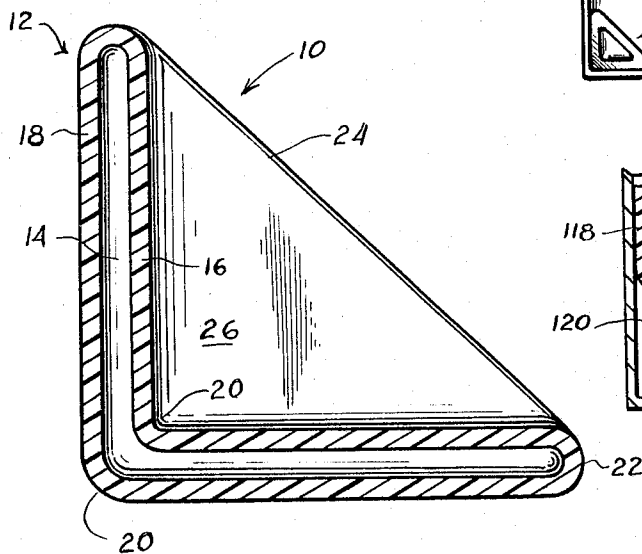
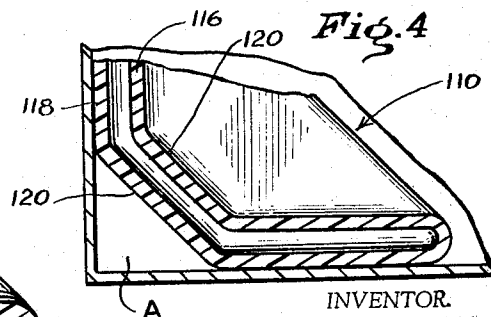


Fig. 4



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CORNER SUPPORT FOR PACKAGING OF ARTICLES

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Filed June 15, 1964, Ser. No. 375,190
4 Claims. (Cl. 206—46)

The present invention relates generally to a spacer for packaging articles in a carton and more particularly to a corner support providing a cushioning effect to prevent damage to fragile articles during shipment.

Conventional corner supports for packaging containers in an outer carton usually consist of a solid support body in the shape of a triangular tetrahedron having an exterior configuration suitable for mounting in the corner of a shipping carton, and having an interior compartment for supporting the articles that are to be shipped. A serious disadvantage in these conventional corner support arrangements has been occasioned by the shock which is transmitted to the articles in the carton by intentional and accidental forces brought to bear against the exterior of the carton. This was caused by the solid construction of the supports which did not allow the shock waves to be absorbed but rather transmitted them directly to the article being shipped. Further, the outer configuration of conventional corner supports was generally formed with a sharp apex which fit flush against the corner of the carton, such that there was insufficient room for expansion and the support expanded against the article packed within the carton.

Broadly, it is an object of the present invention to provide a corner support which obviates one or more of the aforesaid difficulties. Specifically, it is within the contemplation of the present invention to provide a relatively low cost corner support which provides a cushion of air for absorbing shock that might cause damage to the articles being shipped.

In accordance with an illustrative embodiment demonstrating objects and features of the present invention there is provided a corner support for packaging articles in cartons for shipment. The corner support comprises a unitary wall including three pairs of inner and outer walls having an outer configuration conforming to the inner corners of the carton such that the corner support can be mounted in engagement with the inner corner of the carton to form an air pocket between the corner of the carton and the corner support. Thus, the material forming the unitary wall has room to expand without being forced against the article which is being shipped. The wall segments of the respective pairs are interconnected together in confronting relation to form a hollow internal chamber for entrapping a volume of air such that a cushion of air is provided for protecting the articles being shipped.

Preferably, the corner support is in the shape of a triangular polyhedron having a substantially rounded, apex corner or flat apex section which tends to allow the corner support to expand without bearing against the inner corners of the carton. Advantageously, the corner support is fabricated from polyethylene plastic materials which are impervious to attack by chemicals, are water resistant and have a waxy exterior surface which does not mar the objects being shipped and does not readily crack or chip to contaminate the articles being shipped. Polyethylene, in particular, lends itself to fabrication of corner supports in accordance with the present invention since it is possible to form a relatively thin-walled and strong corner support by employing blow molding techniques. This combination of a relatively thin wall structure and a trapped air cushion provides a

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comparatively large volume structure at a low unit cost.

The above brief description as well as further objects, features and advantages of the present invention will be more fully appreciated by reference to the following detailed description of presently preferred, but nonetheless illustrative embodiments in accordance with the present invention, when taken in connection with the accompanying drawings wherein:

FIG. 1 is a perspective view of a corner support in accordance with the present invention shown mounted in a carton, with portions of the walls of the carton broken away and sectioned to more clearly illustrate the invention;

FIG. 2 is a plan view of the corner supports and carton shown in FIG. 1, with the corner supports in a position of engagement with the corners of the carton;

FIG. 3 is a sectional view taken along the line 3—3 of FIG. 1 looking in the direction of the arrows, and showing the internal chamber for entrapping a cushion of air; and,

FIG. 4 is a sectional view of a further embodiment demonstrating the present invention and showing the relatively flat apex section which provides an air pocket.

Referring now specifically to the drawings, there is shown a corner support generally designated by the reference numeral 10, which is positioned to engage the corners of a carton C. It is contemplated that the corner support 10 be used in connection with conventional outer containers, such as kraft boxes, corrugated cartons, metal boxes, wooden boxes, and the like. The carton or container C is formed with upstanding walls W of generally parallelepiped configuration having a rectangular cross section.

The corner support 10 includes a close hollow wall 12 of unitary construction which forms an air-tight internal chamber 14 for entrapping a volume of air. As best seen in FIG. 3, the general configuration of the corner support 10 conforms to the shape of a triangular polyhedron which includes three pairs of integrally formed inner wall segments 16 confronting outer wall segments 18 which are interconnected along the inclined triangular outer edge or rim 22 of the base of the polyhedron. A rounded dome or apex 20 is formed at the junction of the three inner wall segments 16 and outer wall segments 18. The inner wall segments 16 are spaced from the outer segments 18 in confronting relation thereto, and the wall segments 16, 18 terminate in the rim or lip 22 that bounds an opening 24 at the base of corner support 10. Both of the wall segments 16 and 18 are of the same general triangular shape, and a mounting compartment 26 is formed by the three inner wall segments 16 which serves as a seat for mounting the corresponding corner of the articles to be packed in the carton C.

In FIG. 4 there is shown another embodiment of the present invention in which the corner support is formed in the shape of the frustum of a triangular polyhedron. Accordingly, the corner support, generally designated by the reference numeral 110, is provided with three pairs of inner wall segments 116 and outer wall segments 118 having a junction at a relatively flat dome or apex 120. Thus, a relatively large air pocket A is defined between the inner corner of the carton C and the outer surface of dome 120. It can be appreciated that this construction provides more room for the material forming the unitary wall of corner support 110 to expand in the air pocket A without being forced against the article which is being shipped. Since the corner support 110 is in all other respects similar to the corner support 10, it will not be necessary to further describe the corner support 110.

While various materials can be used to fabricate the corner supports 10 and 110, the invention is best suited to fabrication from polyethylene which can easily be blow

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molded into the desired hollow-wall construction. It has been found that polyethylene can easily be formed into a corner support of the type described herein which provides an air cushion for supporting the article that is to be shipped.

In order to provide a more thorough understanding of the present invention, a typical packaging arrangement employing the corner supports 10 will now be described and it will be readily understood that a corner support 110 may also be employed in a similar manner. By referring to FIGS. 1 and 2 it can be seen that the corner support 10 is placed against the corners of the carton C, with an air pocket A being formed between the rounded apex 20 and the inner corner of the carton C. In packaging an object for shipment it is the general practice to place four corner supports 10 into the cradling position as shown in FIG. 2 and then place the item to be shipped inside the carton such that the corners of the article are placed in the mounting compartments 26 in abutting relationship with the inner wall segments 16 before sealing the side flaps of the carton C. Depending on the type of item which is being shipped, it may also be advisable to position four additional corner supports in the corresponding upper corners of the carton C in a manner similar to the placement of the corner supports 10 on the bottom corners of the carton C. In this manner, it is possible to package articles for shipment with the internal chamber 14 of the corner supports 10 providing a cushion of air to prevent damage to the articles being shipped. Further, by providing corner supports having rounded domes 20 and relatively flat domes 120, respectively, it is possible to allow for expansion of the corner supports 10 and 110 into the air pocket A thereby preventing the corner support from bearing against the article which is being shipped.

A latitude of modification, change and substitution is intended in the foregoing disclosure and in some instances some features of the invention will be employed without a corresponding use of other features. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the spirit and scope of the invention herein.

What I claim is:

1. A corner support fitted into the corners of a carton, said corner support comprising a unitary wall including three pairs of inner and outer wall segments, the walls of each pair being disposed in confronting relation and said

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pairs together forming a hollow internal chamber entrapping a volume of air, said wall segments being configured substantially in the form of a triangular polyhedron and having a dome-shaped apex such that an air pocket is formed between said apex and the corner of the carton to allow the material forming said unitary wall to expand without being forced against the article being shipped.

2. A corner support fitted into the corners of a carton, said corner support comprising a unitary wall including three pairs of inner and outer wall segments, the walls of each pair being disposed in confronting relation and said pairs together forming a hollow internal chamber entrapping a volume of air, said wall segments being configured substantially in the form of the frustum of a triangular polyhedron and having a relatively flat apex such that an air pocket is formed between said apex and the corner of the carton to allow the material forming said unitary wall to expand without being forced against the article being shipped.

3. A corner support blow-molded from polyethylene plastic material into a triangular polyhedron configuration and shaped to be fitted into the corners of a carton, said corner support comprising a unitary wall including three pairs of inner and outer wall segments, the walls of each pair being spaced apart from each other and disposed in confronting relation and said pairs together forming an air-tight hollow internal chamber entrapping a volume of air.

4. A corner support according to claim 3 in which said pairs of wall segments terminate in a rim bounding an opening at the base of the corner support and the inner wall segments form a mounting compartment which serves as a seat for the mounting of articles to be shipped in the carton.

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