Feb. 7, 1967 J. M. PEZELY, JR 3,302,782

ADJUSTABLE CORNER PACKAGING PAD

Filed Oct. 20, 1964

FIG. 1

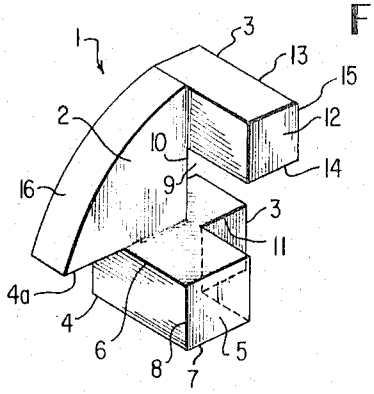


FIG. 1a

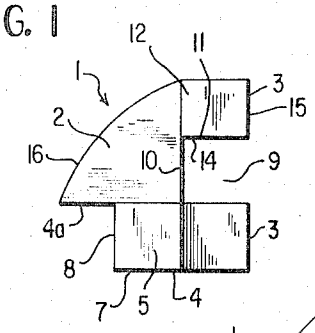


FIG. 2

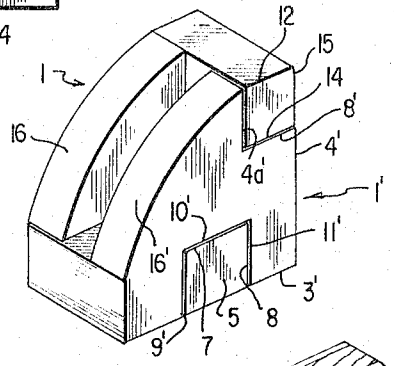


FIG. 3

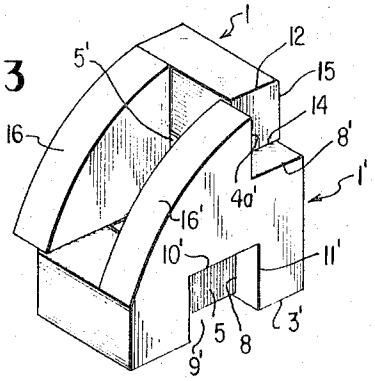


FIG. 6

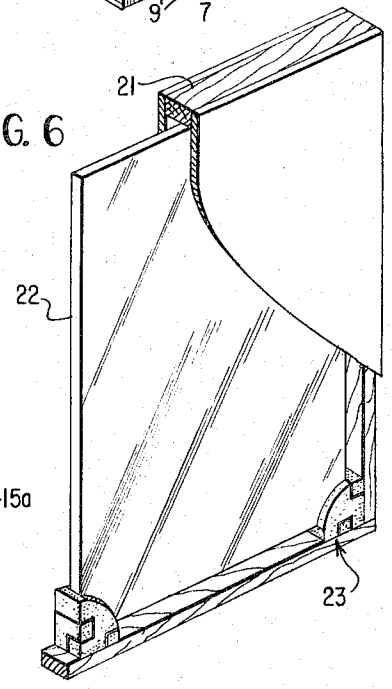


FIG. 4

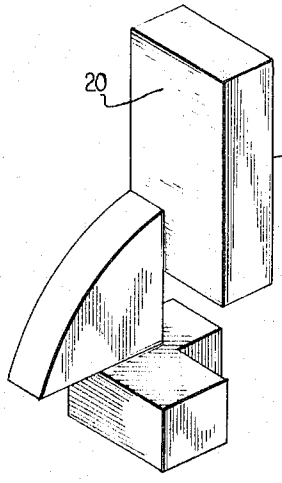
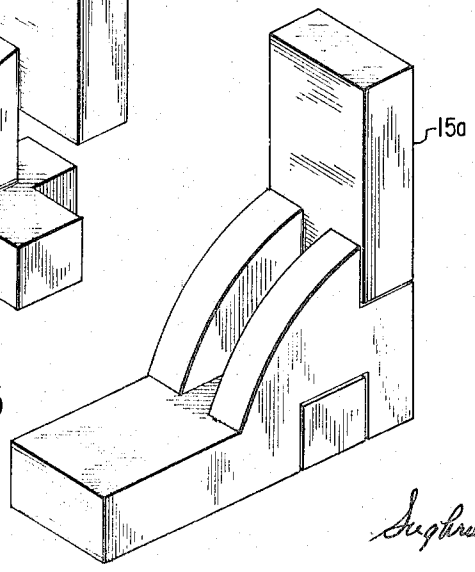


FIG. 5



INVENTOR.
JOSEPH M. PEZELY, JR.

BY

Hughes, Rockwell, Mion, Zinn & Macpeak

ATTORNEYS.

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ADJUSTABLE CORNER PACKAGING PAD

Joseph M. Pezely, Jr., Elmira, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York

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This invention relates to improvements in packaging material used to absorb the shock which is imparted to fragile articles during shipping or other handling of the articles and, more particularly, to a novel packaging module which may be combined with another identical module to form an adjustable corner packaging pad.

Special care must usually be taken in the shipping or handling of large flat articles since these articles are often of a fragile nature. Examples of such articles would include mirrors, pictures or other glass products. To provide this special care, these articles are usually placed within outer boxes or containers and are spaced from the walls of the outer container and cushioned from shock or impact by shock absorbing materials, such as waste paper, excelsior, foam rubber, molded foam plastic pads or corrugated cardboard pads. Although the shock absorbing material may be placed at any point on the outer surface of the article, it is always necessary to provide adequate protection for the corners of the article.

To provide this protection, shock absorbing corner packaging pads are placed on the corners of the article which is then placed within the outer container for shipping or handling. Normally, one who must ship and handle large flat fragile articles of various sizes must keep in stock many different sizes of packaging pads so that he will always have a pad of the correct size for any given fragile article to be shipped.

Solutions to this inventory problem are difficult to provide at a reasonable cost. Presently, one must either order pads custom made or order them in the size closest to that desired. The first method is unsatisfactory because of the expense, while the second method is unsatisfactory since it does not provide adequate protection.

This invention solves the inventory and cost problems by providing a pad formed from modules of a single size and shape which pad may be adjusted to fit snugly onto the corner of articles of any thickness.

It is an object of this invention to provide a corner packaging pad assembled from two identical modules which, because of their particular construction, allow the pad to be adjusted to fit articles of all sizes.

In accordance with this invention, a corner pad, which would be used on an item such as a mirror or picture for protection from shocks normally encountered in shipping or handling, consists of two identical modules of shock absorbing material. Each module has two tongues projecting from one side. Adjacent each of the tongues, grooves or recesses are provided. Each module has a unique relationship between the size and location of the tongues and grooves. The tongues of each module are inserted into the grooves of the other module to form a pressure fit adjustable corner pad assembly.

The pad is placed onto the article to be shipped or handled with flat sides of the module resting against the flat sides of the article. The space between the flat sides of the pad can be varied by simply pushing the flat sides

of the pad together or pulling them farther apart. Each module also has only one curved edge, the other all being straight and at right angles to each other. This serves to simplify the assembling of the modules into pads. The modules are so constructed and arranged that one may simply line up the curved edges of the two identical modules and while the modules are held in this position, pushes them together. The tongues on each of the modules will then move into the appropriate grooves in the other module.

The material employed to form the module must have superior shock dampening characteristics and must be bulky. The bulkiness is necessary because of the relationship of the size of the various parts of the module to each other. Accordingly, at present, it appears that expansible polystyrene foam is the best all-around material to produce this product. Other plastic foams are also satisfactory.

Other objects and advantages of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawings, which disclose, by way of example, the principles of the invention and the best mode which has been contemplated of applying these principles.

In the drawings:

FIGURE 1 is a perspective view showing one embodiment of the invention.

FIGURE 1*a* is a side elevational view of the embodiment shown in FIGURE 1.

FIGURE 2 is a perspective view of a corner packaging pad formed by two of the modules shown in FIGURE 1.

FIGURE 3 shows the corner pad of FIGURE 2 with the flat sides pulled apart to accommodate an article of a larger thickness.

FIGURE 4 shows a modification of the embodiment shown in FIGURE 1.

FIGURE 5 shows a corner pad formed by two of the modules shown in FIGURE 4.

FIGURE 6 shows a shipping container carrying a large flat fragile object, the lower corners of which are protected by the corner packaging pad shown in FIGURE 2.

Referring to FIGURES 1 and 1*a*, a module **1** is formed of a shock absorbing material and has a flat portion formed by two substantially parallel sides **2**. A first edge **3** lies in a plane substantially perpendicular to the plane of the parallel flat sides **2**. A second edge **4** is substantially perpendicular to the planes of the flat sides **2** and is also substantially perpendicular to the edge **3**. The term "substantially perpendicular" takes into account the fact that molded items usually require a slight draft. Projecting from one flat side **2**, and adjacent edge **4**, is a first tongue member **5**. The tongue member **5** is formed by a length dimension **6**, a width dimension **7** and a thickness **8**. The second edge **4** extends from the first edge **3** to the end of the tongue **5**. From this point to the end of the module the edge **4** is recessed by an amount equal to the width **8** of the tongue **5**. This recessed portion of edge **4** is designated as **4***a*. The first edge **3** has formed therein a groove **9** which is formed by width dimension **10** and a depth **11**. It is important that the width **7** of the tongue be equal to the width **10** of the groove and that the thickness **8** of the tongue be equal to the depth **11** of the groove.

A second tongue **12** projects outward substantially perpendicular to the plane of the side plate **2**, adjacent the first edge **3**, and parallel to the first tongue **5**. Second tongue **12** is located immediately adjacent the groove **9** and on the side of the groove away from the first tongue **5**. The second tongue **12** is formed by a length **13**, a width **14** and a thickness **15**. The length **13** is equal to the length **6** of the first tongue. The width **14** is equal to the thickness **8** of the first tongue. The thickness dimension **15** must start at the groove **9**, but may extend outward from the groove by any amount. FIGURE 4 shows a module with an edge **15***a* greater than the edge **15** of FIGURE 1.

FIGURES 2 and 3 show a corner packaging pad formed by two modules of the embodiment shown in FIGURE 1. A second module is indicated as element **1'**. The numerical designations of the module **1'** are all identical to those of the module **1**, but have been designated as (').

Curved edges **16** and **16'** of the modules **1** and **1'** are provided to simplify assembly of the modules to form the corner pad. These edges serve as a guide. For assembly, the curved edge **16** of module **1** is lined up with curved edge **16'** of module **1'**. The two modules are then pushed together. The tongues of each module then move into the grooves of the other module in a manner discussed below.

It is seen in FIGURE 2 that the tongue **5** of module **1** fits snugly into the groove **9'** in module **1'**. The thickness dimensions of the tongue **5** rest adjacent the depth dimensions **11'** of the module **1'**, and the inside width edge **7** of the tongue **5** rests adjacent the inside width edge **10'** of the module **1'**. The side of tongue **12** adjacent the groove **9** and described by length **13** and width **14** then rests on the side of tongue **5'** which is closest to edge of **4***a'*. One side of the tongue **12** described by length **13** and thickness **15** lies adjacent the edge **4***a'* of the module **1'**. This edge of tongue **12**, however, as was noted earlier, may be extended past the edge **4***a'* in a direction parallel thereto.

While the above discussion describes how the tongues of module **1** fit into the grooves on the module **1'**, it is understood that the tongues on the member **1'** fit into the grooves on the module **1** in an identical manner.

FIGURE 3 illustrates how the module **1** may be moved away from the module **1'**, with respect to the position of these two modules as shown in FIGURE 2, so that the pad will accommodate a fragile object having a thickness greater than that which would be accommodated by the pad as shown in FIGURE 2.

It is apparent that the distance between the side plates **16** and **16'** is limited only by the length of the tongues **5** and **12**. Thus, if it were contemplated that the corner packaging pad would be used on very wide objects, it would only be necessary to make the tongues **5** and **12** of a greater length. In adjusting the width of a given pad by moving the side plates **16** and **16'** towards and away from each other, the outward movement may continue so long as the tongues **5** and **12** maintain some overlap with the tongues **12'** and **5'** respectively. The plates **16** and **16'** can, theoretically, be moved together until they touch. However, in practice, the outside side plates **2** and **2'** would probably be placed immediately adjacent the outer container. Therefore, it would be practical to push the plates **16** and **16'** together only until the outer ends of the tongues reached the planes of the outer side faces **2** and **2'**.

FIGURES 4 and 5 show a modification of the module and corner packaging pad shown in FIGURES 1 through 3. It was noted above that the thickness **15** of the tongue **12** could be of any length. FIGURES 4 and 5 show a modification in which the thickness **15** is extended. The purpose of extending **15** is that the side **20** of the tongue **12** serves, in addition to its function

in joining the modules together, as a bearing area against which the fragile article rests. Except for the extension of the thickness **15**, the module shown in FIGURE 4 is identical to that shown in FIGURE 1.

The corner packaging pad shown in FIGURE 5 is composed of two modules of the type shown in FIGURE 4. The inter-connections of the parts of the module of FIGURE 4 to form the pad of FIGURE 5 are identical to those of the module shown in FIGURE 1 as discussed above.

FIGURE 6 shows how the corner packaging pad **23**, which is identical to the corner packaging pad shown in FIGURE 2, would be employed to hold, and absorb any shock transmitted to a fragile object, for instance a clear pane of glass, **22** while it is being shipped or handled in outer container **21**.

It is apparent that the instant invention may be modified in several ways not discussed above which would still be within the scope of this invention. Thus, it would be possible to vary the thickness between the two flat sides, or the length of the tongues, or any dimensions other than those discussed above as being important to the assembly of the module to form the adjustable corner packaging pad.

For several reasons the packaging module provided by this invention will enable packaging cost to be significantly reduced. First, the adjustability of the module will allow persons confronted with the problem of packaging corners of various sizes to keep in stock only the packaging module of the instant invention. Most, if not all, of the required corner packaging pads, regardless of size, can be formed by joining two of the modules disclosed herein.

Next, the cost of breakage during shipping or handling should be reduced. This follows for several reasons. First, the shipper who orders ready made packaging pads, as opposed to the custom molded pads, needs no longer be satisfied with only the closest available size. He may now be assured that he will have a pad of the correct size and consequently, that the corners of the fragile articles shipped will always have adequate protection from shock. And secondly, the fact that the instant cornering pad is made of a superior shock absorbing material will provide further insurance against damage or breakage.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to the preferred embodiment, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the following claims.

What is claimed is:

1. A corner packaging pad comprising: two identical modules, each module including a body of shock absorbing material comprising: a first flat side, a second flat side substantially parallel to said first flat side, a first edge substantially perpendicular to the two flat sides, a tongue projecting from the first flat side, adjacent said first edge, in a direction substantially perpendicular to the plane of the first side, a second edge substantially perpendicular to the two said sides and also substantially perpendicular to and intersecting the plane of the said first edge, a groove in said first edge, the dimensions of the cross section of the tongue being substantially equal to the dimensions of the cross section of the groove, said latter cross section being taken in a plane parallel to the plane of the said sides, wherein the tongue of each of the two modules is inserted into the groove of the other of the two modules.

2. A packaging module including a body of shock absorbing material comprising: a first flat side, a second flat side substantially parallel to said first flat side, a first edge substantially perpendicular to the two flat sides, a

tongue projecting from the first flat side, adjacent said first edge, in a direction substantially perpendicular to the plane of the first side, a second edge substantially perpendicular to the two said sides and also substantially perpendicular to and intersecting the plane of the said first edge, a groove in said first edge, the dimensions of the cross section of the tongue being substantially equal to the dimensions of the cross section of the groove, said latter cross section being taken in a plane parallel to the plane of the said flat sides, and a second tongue projecting from the first flat side in a direction substantially perpendicular to the plane of the said first side, said second tongue located adjacent said second edge and adjacent

the said groove and located on the side of the groove away from the plane of the said first edge.

3. A packaging module as set forth in claim 2 in which the length and the width of the second tongue is equal to the length and the width of the first tongue.

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THERON E. CONDON, *Primary Examiner.*

MARTHA L. RICE, *Examiner.*