Jan. 12, 1960 W. E. McWHORTER 2,920,808

SHIPPING CONTAINER FOR FRAGILE IRREGULARLY SHAPED ARTICLES

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FIG. 1

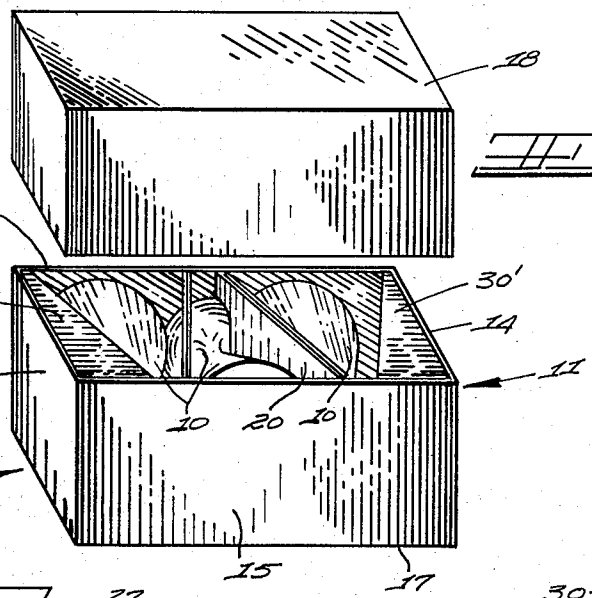



FIG. 2

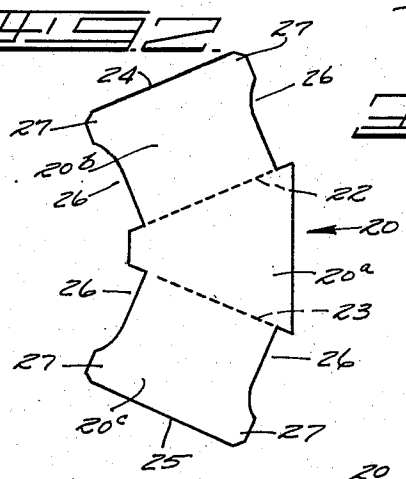



FIG. 3

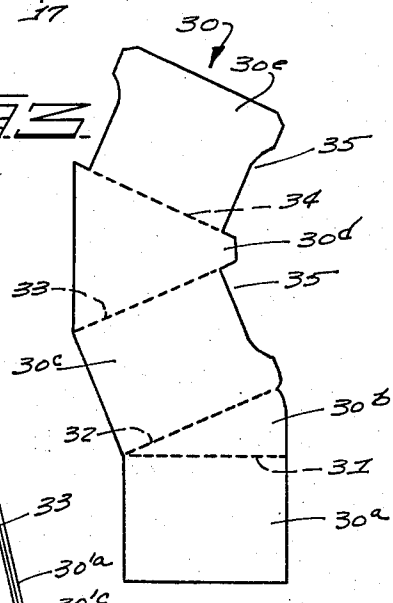
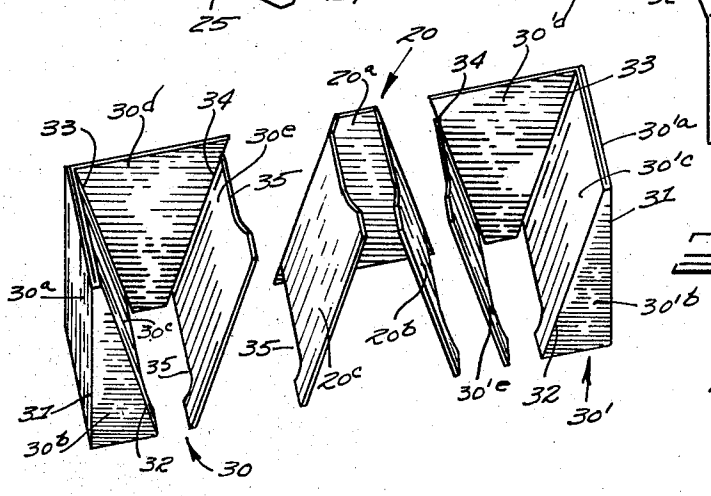



FIG. 4




INVENTOR
WILLIAM E. McWHORTER
BY PAUL F. STUTZ
W. A. SCHAICH
ATTORNEYS

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FIG. 5.

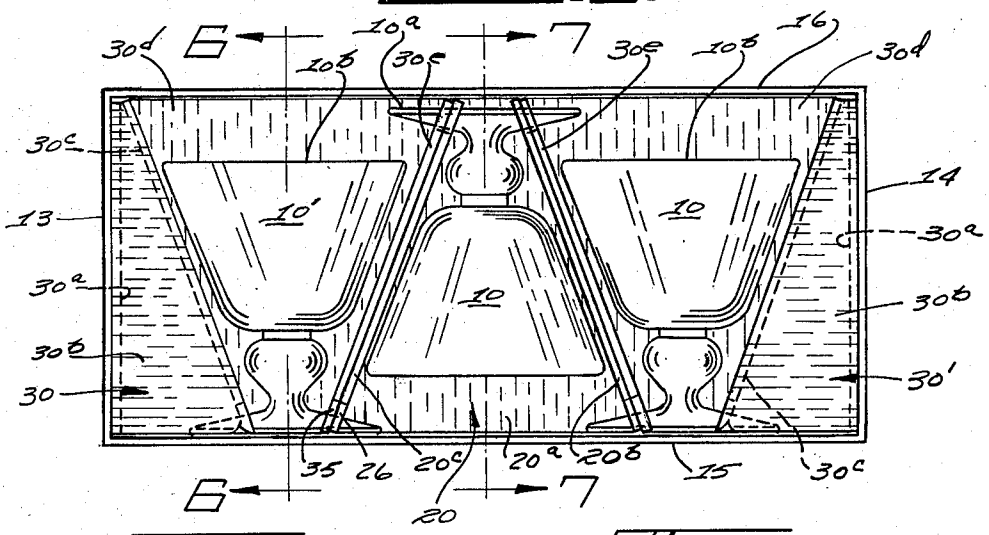



FIG. 6.

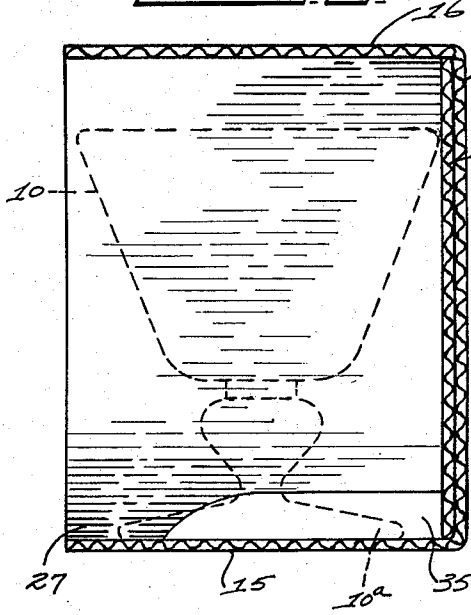
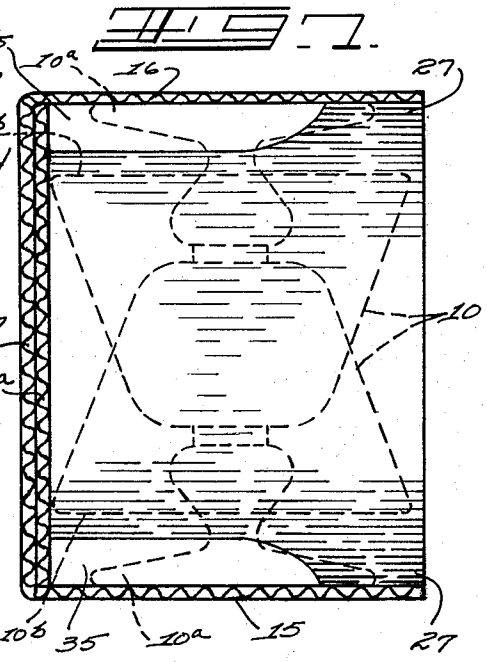



FIG. 7.



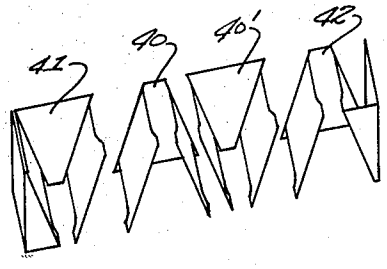




FIG. 8.

INVENTOR
WILLIAM E. McWHORTER
BY PAUL F. STOTZ
W. A. SCHAICH
ATTORNEYS

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# SHIPPING CONTAINER FOR FRAGILE IRREGULARLY SHAPED ARTICLES

William E. McWhorter, Toledo, Ohio, assignor to Owens-Illinois Glass Company, a corporation of Ohio

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5 Claims. (Cl. 229—42)

The present invention relates to an improved carton construction. More specifically, the present invention relates to a carton construction employing novel partition members.

The packaging and shipping of fragile irregularly shaped articles is beset with many problems. The most important of these is the matter of breakage. This is especially critical in connection with the packaging and shipping of fragile articles which have end portions which are flared outwardly with respect to the intermediate portion. Examples of such articles are the glass containers of the type commonly referred to as stemware, e.g., drinking goblets, pilsner type containers, and others. Containers of this type have one end defining a receptacle for contents, an intermediate stem portion, and at the other end, an outwardly flaring base. Insofar as breakage is concerned, it has been common practice to ship such articles in a container including excelsior, sawdust, shredded paper, and the like. This solution to the breakage problem is not entirely satisfactory, however, inasmuch as the vibration encountered on shipping may cause shifting of the fragile articles, dislocation of the excelsior and, frequently, contact between the glass articles, leading ultimately to chipping or breakage. The foregoing is also disadvantageous in that it presents a cleanliness problem to the ultimate consumer. In addition, it is found that even upon removal of the lid or closure of the container, the glass articles are hidden from view.

There have also been proposed various complicated partition arrangements for holding the individual glass articles out of contact with each other. Unfortunately, arrangements of this type known heretofore have proved to be quite bulky in order to accomplish safe isolation of the individual articles and, in addition, involve a complete envelopment of the glass article so that the article is hidden from view in a similar manner to that mentioned above. Arrangements of the foregoing type are also advantageous in that the removal of the article shipped from the container and the partition arrangement necessitates destruction of the completely enveloping type partition.

Accordingly, it is an object of the present invention to provide a shipping container for a plurality of fragile, irregularly shaped articles which effectively isolates the individual articles one from the other and insures against contact and breakage thereof.

It is another object of this invention to provide such a shipping container or carton which is of relatively simple design, and may be economically constructed utilizing a minimum of the material utilized in forming the container or carton construction.

It is a principal object of this invention to provide a carton construction of the foregoing type in which the lid or closure portion thereof is not necessary to hold the article shipped within the confines, thereby permitting removal of the closure or lid for ready display of the contents, without risk of falling out of the fragile articles.



It is still another object of this invention to provide such a carton construction which permits easy removal of the fragile articles contained therein, and also permits easy reintroduction of the fragile article therein.

It is yet another object of this invention to provide such a carton construction which is possessed of a plurality of cells and is structurally reinforced against compressive forces.

These and other objects of this invention will become apparent from the following detailed description, taken in conjunction with the attached sheets of drawings, on which there is presented for purposes of illustration only, several embodiments of this invention.

In the drawings:

Fig. 1 is a perspective view from above of a carton construction according to this invention.

Fig. 2 is a plan view of one type of partition member utilized in the carton construction of this invention.

Fig. 3 is a plan view of another type of partition member utilized in the carton construction of this invention.

Fig. 4 is a partially exploded, perspective view showing the relationship of the two types of partition members when folded and erected.

Fig. 5 is a plan view of the carton construction of this invention.

Fig. 6 is a sectional view taken on the line **6—6** of Fig. 5.

Fig. 7 is a sectional side elevation view taken on the line **7—7** of Fig. 5.

Fig. 8 is a view similar to Fig. 4, but showing the employment of additional partition members in a shipping container constructed according to this invention.

Basically, the present invention contemplates a carton construction comprising a principal outer shell and, contained therein, partition members adapted to permit arrangement of a plurality of fragile, irregularly shaped articles in spaced-apart, inverted relationship with respect to each other and also spaced from the end walls of the outer shell.

Referring now more specifically to the drawings, there is shown in Fig. 1 a complete carton construction **11** of this invention, into which there have been placed a plurality of glass goblets **10**. The carton construction is composed of an outer shell **12**, having opposed upstanding end walls **13** and **14**, opposed upstanding side walls **15** and **16**, and a bottom wall **17**. The carton may be conveniently formed from corrugated board. Above the carton construction, there is shown a lid member **18** adapted to telescope down about the end and side walls to complete the carton construction. Serving to hold the glass goblets **10** in spaced-apart, inverted relationship are three partition members, identified generally by the numerals **30**, **20**, and **30'**. These may be likewise corrugated board, although any stiff sheet material will serve. The partition members **30** and **30'** are of identical configuration in blank, as will be discussed more fully hereinafter. The central partition member **20** is shown in knock-down blank form in Fig. 2. It is composed of a central triangular panel member **20*a***, having appending therefrom in symmetrical fashion, auxiliary wing panel sections **20*b*** and **20*c***. Score line **22** separates panel **20*a*** and panel **20*b***, while score line **23** separates panel **20*a*** and panel **20*c***. The panel sections **20*b*** and **20*c*** have outer edges **24** and **25** which are spaced from and parallel to score lines **22** and **23**, respectively. Each of the panel sections **20*b*** and **20*c*** are provided with a cut-out or recess portion **26** in the edges leading from the triangular panel **20*a***. The recess portion leaves a projecting leg **27** at either end of the edges **24** and **25**.

In Fig. 3, there is shown in knock-down blank form the partition member **30** which may be used to form the

end partition members identified as 30 and 30′ in Fig. 1. The partition 30 is composed of five panel sections hingedly connected together. Score lines 31, 32, 33, and 34 separate, respectively, a rectangular panel section 30*a*, a triangular panel section 30*b*, a generally rectangular panel section 30*c*, a triangular panel section 30*d*, and a generally rectangular panel section 30*e*. The triangular panel sections 30*b* and 30*d* are inverted with respect to each other, and the panel 30*b* is smaller than the triangular panel 30*d*. Panel section 30*c* is provided with a cut-out or recess portion 35, similar to the cut-out or recess portion 26, illustrated in Fig. 2. The generally rectangular panel section 30*e* contains two such cut-out or recess portions 35 and is ideally congruent to the panel sections 20*b* and 20*c* of the partition member 20.

The partition members are folded about the score lines into the configuration shown in Fig. 4. In the interest of simplicity of illustration, the partition members are shown in spaced-apart relationship. The end partition member for one end of the carton is folded in the following fashion: Panel sections 30*a* and 30*b* are folded normal to each other about score lines 31; then, panel 30*c* is folded about score line 32 normal to panel section 30*b*, but in the opposite direction, so as to lie adjacent to panel section 30*a*. It can be seen that the edge of panel section 30c, containing the recess 35, will be spaced further from panel section 30*a* than the other edge thereof, due to the intermediate triangular panel section 30*b*. Next, triangular panel section 30*d* is reversibly folded about score line 33 into a plane normal to panel sections 30*a* and 30*c*, but parallel to panel section 30*b*. Finally, panel section 30*e* is folded about score line 34 and inwardly in the direction of triangular panel 30*b* to a position generally normal to panel section 30*d*. Folded in this fashion, the end partition member may be positioned within the confines of the box to assume the position shown in Fig. 1 or 5, with the panel section 30*d* flush against bottom wall 17.

Next, central partition member 20 is folded into erected form by simply folding along the score lines 22 and 23 to bring the panel sections 20*b* and 20*c* into a plane generally normal to panel section 20*c*. It may then be placed into the carton with the panel section 20*a* thereof flush against the bottom wall 17 and with the panel section 20*c* flush against panel section 30*e* of partition 30. Next, the other end partition member 30′ may be folded into erected form. By reference to Fig. 4, it can be seen that the manner of folding is quite similar to that discussed in connection with the end partition member 30, with the exception that the directions of folding are reversed to yield a partition member which may be said to be of reverse hand, as compared with the previously described end partition folding arrangement. The panel sections of the end partition member 30′ are identified by the numerals used in connection with end partition member 30, except that a prime (′) is appended.

The member 30′ may be then placed into the shell so that the triangular panel section 30′*d* is flush with the bottom wall 17 of the shell, the rectangular panel section 30′*a* is flush with the end wall 14 of the shell, and the end panel section 30′*e* is flush with the panel section 20*b* of the central partition member 20. The spaces between panel sections 30*c* and 30*e* of the end partition members 30 and 30′, and the space between the panel sections 20*b* and 20*c* of the central partition member 20 will be adapted to receive the glass goblets 10 and, due to the inverted relationship of the respective triangular panel sections 30*d* and 20*a*, respectively, will receive said glass goblets in inverted position.

The assembled relationship of the partition members, the outer shell, and the glass goblet contents are shown in Figs. 5, 6, and 7. In particular, it may be noted that the cut-out portions 26 and 35 in the panel sections, which are in flush assembled relationship, are in registry, so as to conveniently receive the flared out base rim 10*a* of the glass goblet 10. Furthermore, the extent of the cut-out is carefully adjusted in proportion to the dimension of the panel sections so that the base rim 10*a* will be spaced from the upper edge 10*b* of the adjacent inverted glass goblet 10′. The extent of the cut-out or recess portion in the noted panel sections is also carefully controlled so as to leave, as discussed hereinbefore, leg projections 27 which serve to prevent the base of the glass goblet from shifting in the direction of the opening of the carton, thereby insuring against falling out of the glass goblet. If it is desired to remove one of the glass goblets, however, it may be seen that the side wall 15 or the side wall 16 may be bowed outwardly, thereby yielding a passageway between the leg projection 27 and the respective wall, whereby the glass goblet may be removed. Upon removal of the pressure necessary to effecting bowing out of the side wall, the side wall will, of course, snap back into its original configuration, preventing removal of any other glass goblets other than the one desired. It may further be appreciated that re-entry of the glass goblet into the carton may be simply effected by reversing the foregoing operation.

The feature just described permits the carton of this invention to be utilized as a display carton. Thus, the carton may be displayed on the consumer's shelves with the carton resting on wall 15, as shown in Fig. 5. The features described will prevent accidental removal of any of the glass goblets although, as indicated hereinbefore, they may be purposely removed.

In Fig. 8, there is illustrated an arrangement of similar partition members, but utilizing two central partition members 40 and 40′. It can be seen that where more than one such central partition member is utilized, they will be arranged so that the triangular panel sections thereof are in inverted relationship with respect to each other. In this fashion, there can be provided a carton having a plurality of chambers or "cells," thereby permitting the shipping and displaying of any number of fragile, irregularly shaped articles, utilizing a carton having a minimal linear dimension. The end partition members 41 and 42 in such cases will be the same, except that end partition member 41 will be inverted with respect to the partition member 42. This will apply in all cases where an even number of central partition members are employed. Where an odd number of central partition members are utilized, one end partition member will be folded in such fashion as to result in a "reverse hand" arrangement of the panel sections, as illustrated in Fig. 4.

It will be appreciated that where visibility of the articles shipped is desirable, the triangular panel sections 20*a* and 30*d* will lie in the same plane, all being flush with the bottom wall 17 of the receptacle shell. However, where visibility is not essential as to each and every article contained therein, one or more of the central partition members may be so arranged that the triangular panel section 20*a* lies in the plane defined by the free edges of the upstanding side and end walls. With the latter arrangement, of course, the spatial isolation of the fragile articles is still accomplished, and contact of the articles will be avoided.

It will be seen that the relationship of the individual panel sections of the end partition members in folded, erected condition defines a spacing chamber enclosed by panel sections 30*a*, 30*b*, and 30*c*, and an article receiving chamber enclosed by panel sections 30*c*, 30*d*, and 30*e*. The article receiving chamber just defined is preferably open in the plane of the opening of the shell defined by the free edges of the upstanding walls of said shell.

An added feature of the present invention is the overall spatial rigidity accomplished by the utilization of the partition members, constructed and arranged as described hereinbefore. The foldably connected series of panels constituting the partition members, their flush contact with the walls of the shell and each other, and the angular disposition of some of the panel sections, e.g., 30*c*, 30*e*, 20*c*, 20*b*, serve to resist compressive forces exerted

against the outer surfaces of the receptacle, regardless of the direction thereof.

While the foregoing description has been made with reference to a construction providing a linear roll of chambers or cells, it may be appreciated that more than one row of cells may be provided by using a larger receptacle divided by a central partition element into two compartments. Each of the latter may then be further divided to receive a plurality of inverted, spaced-apart articles in the same manner as described hereinbefore.

Obviously, the exact configuration disclosed herein may be varied in respect to dimension, proportion, etc., to fit the requirements imposed by the dimension and contour of the fragile article to be packaged. Accordingly, it is not intended to limit the scope of the invention by the nature of the illustrations or the foregoing description, except to the extent specified in the appended claims.

I claim:

1. An improved receptacle for shipping and displaying a plurality of frangible articles having flared end portions, said receptacle comprising: a rectangular box-like outer shell having a bottom wall and upstanding side and end walls; two end partition members each comprising in series, foldably connected together, a first panel section in abutment with said end wall of said shell, a second panel of triangular configuration disposed normal to said first panel, a third panel normal to the said second panel being provided with a recess portion along a free edge, a fourth panel of triangular configuration disposed parallel to said second panel and inverted with respect thereto, a fifth panel normal to said fourth panel and being provided with recess portions in opposed free edges, and at least one central partition member comprising a central panel of triangular configuration and two secondary panel members disposed normal to and foldably secured to edges of said triangle, said latter two panel members being provided with a recess portion along each edge extending from said central panel, said latter recesses registering with recesses in said fifth panel to provide a support for a flared marginal portion of said article.

2. An improved receptacle for shipping and displaying a plurality of frangible articles having flared end portions, said receptacle comprising, in combination with a rectangular box-like outer shell having a bottom wall and upstanding side and end walls, two end partition members each comprising a foldably connected series of panels disposed in sequentially normal relationship to adjacent panels of said series, and two of which panels are of self-inverted triangular configuration located in flush abutment with opposed side walls of said shell to thereby define, with the remaining panels of said series, a spacing chamber adjacent an end wall of said shell and an article-receiving chamber adjacent to said spacing chamber; at least one central partition member located between said two end partition members, said central partition member including a triangular panel inverted with respect to but in the same plane as the next adjacent triangular panel in said end partition member; and integral flap means connected to said triangular panel of said central partition contacting said walls of said receptacle and panels of said end partition to maintain said triangular panel in alignment with said next adjacent triangular panel, and thereby maintaining said two end partition members sufficiently apart to define an additional article-receiving chamber which is inverted with respect to the adjacent article-receiving chamber of said end partition.



3. In combination with a carton having a bottom wall and upstanding side and end walls, partitions at each end and centrally thereof, said end partitions including a series of foldably connected panels, the first, third, and fifth spanning the distance between opposed walls of the carton, and the second and fourth abutting said opposed walls and being of inverted triangular configuration to thereby define a spacing chamber adjacent an end of said carton and an article-receiving chamber adjacent said spacing chamber, said central partition member including a triangular panel abutting the same wall as the adjacent triangular panel of said end partition member, and wing panels foldably connected thereto contacting opposed walls of said carton and abutting said innermost panel of said series to thereby maintain said triangular panel in spatial alignment with said other triangular panels and define an article-receiving chamber inverted with respect to the article-receiving chamber of said end partition member.

4. The carton of claim 3, wherein the panels in said partitions defining article-receiving chambers are provided with cut-outs in the edges thereof adjacent side walls of said carton to receive a marginal edge portion of an article contained therein.

5. The carton of claim 4, wherein said cut-outs are spaced from the corners of said panels.

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