June 13, 1967 H. J. WANDERER 3,325,004

MULTI-PACKAGING DEVICE

Filed Jan. 26, 1965

2 Sheets-Sheet 1

Fig. 1

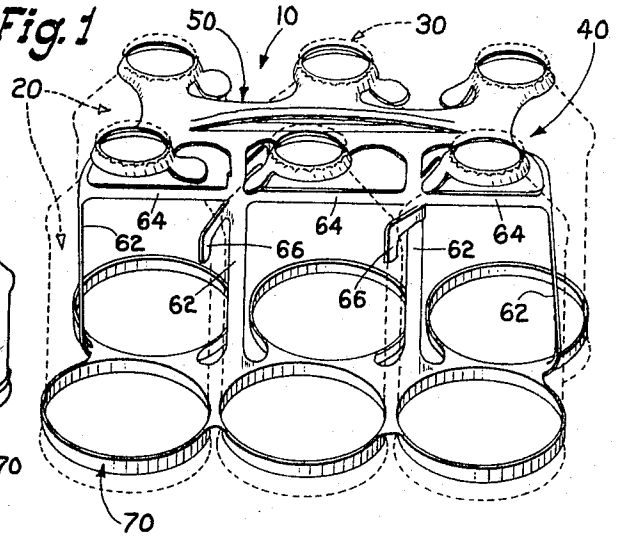


Fig. 2

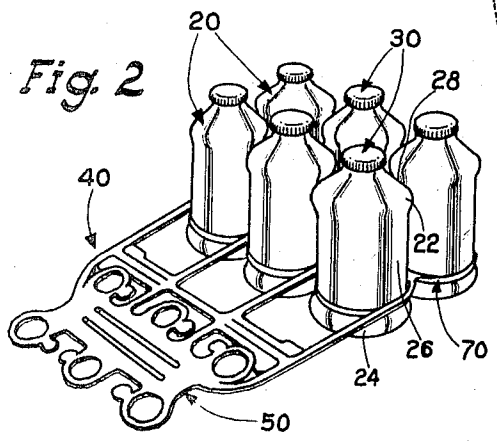


Fig. 3

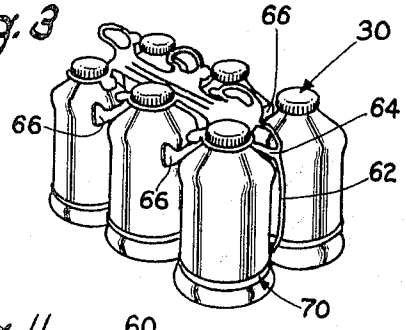
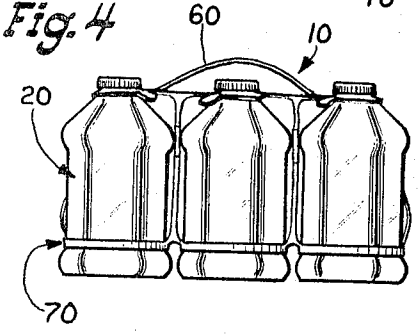


Fig. 4



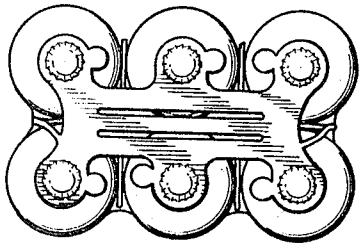
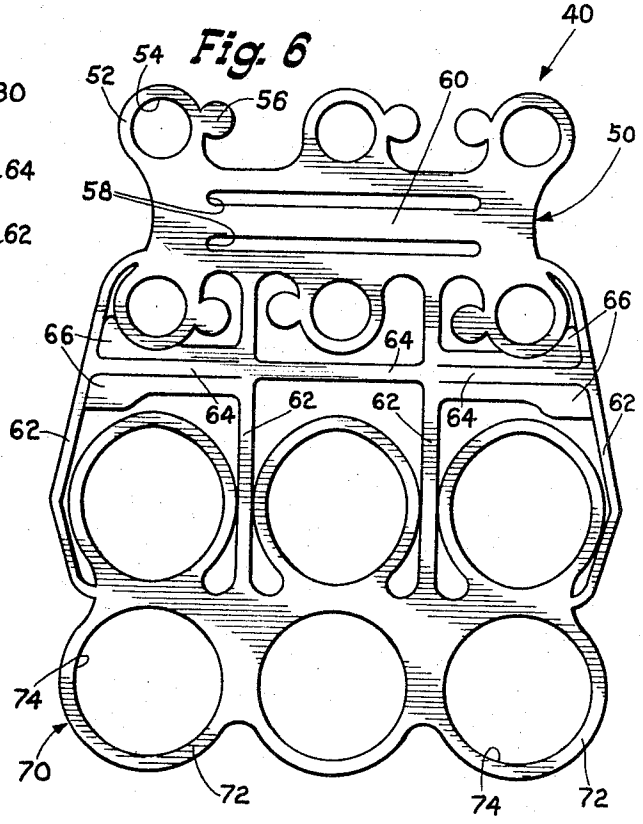


Fig. 5

Fig. 6



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MULTI-PACKAGING DEVICE

Filed Jan. 26, 1965 2 Sheets-Sheet 2

Fig. 7

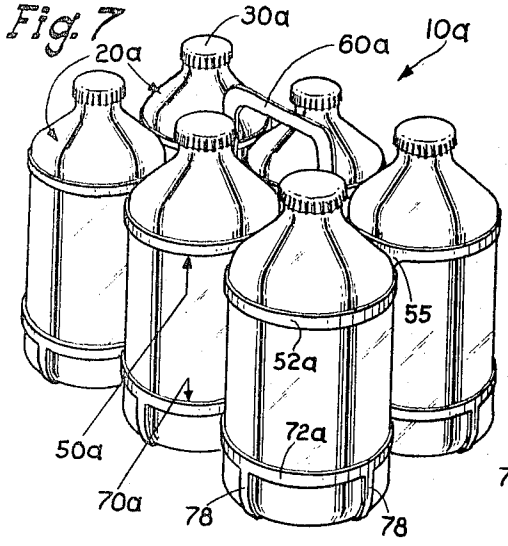


Fig. 8

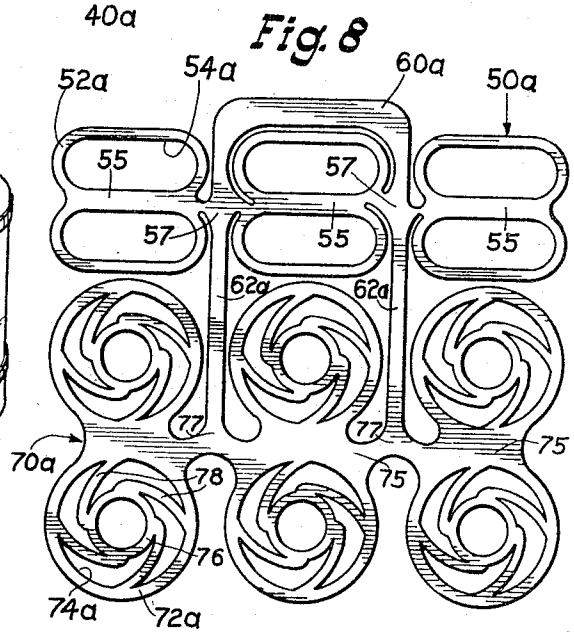


Fig. 9

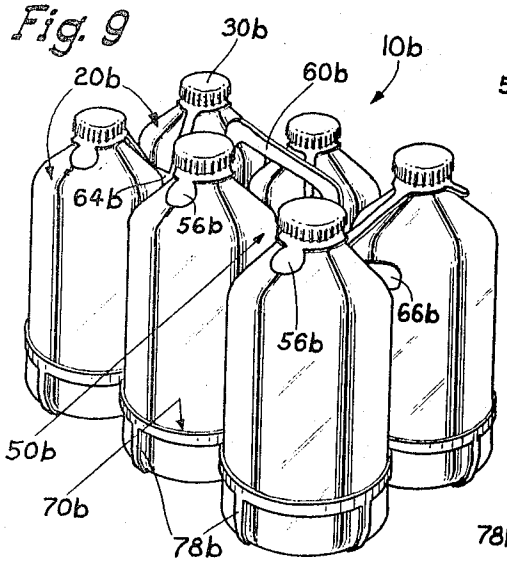


Fig. 10

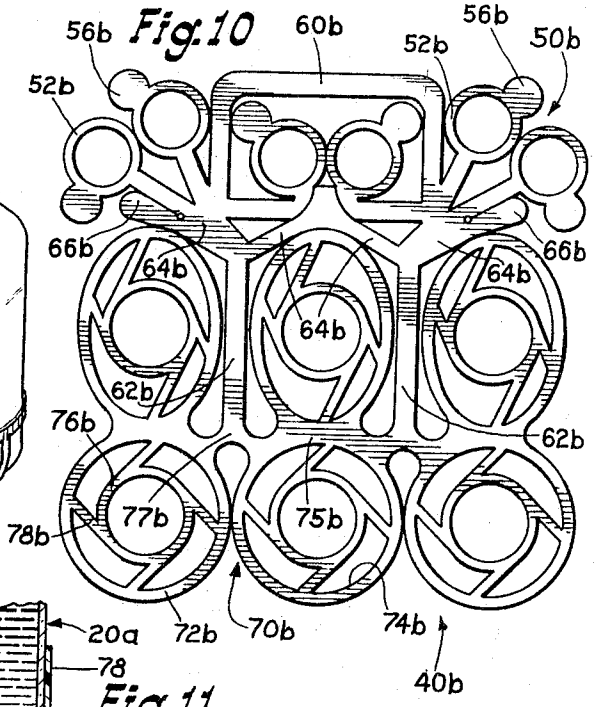
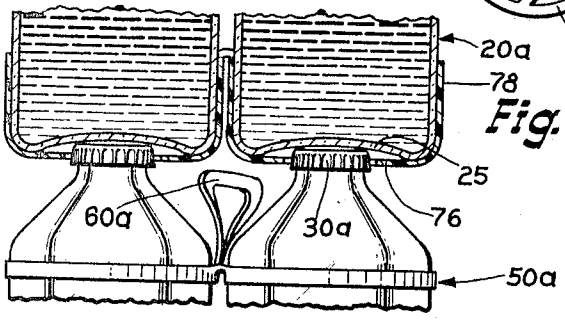


Fig. 11



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United States Patent Office

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MULTI-PACKAGING DEVICE

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2 Claims. (Cl. 206—65)

ABSTRACT OF THE DISCLOSURE

A one-piece elastic multi-packaging device including first and second spaced container carrier portions joined to each other by connecting web portions with the connecting web portions and container spacer elements joined thereto cooperating to prevent engagement between adjacent containers secured together as a unit by the first and second container carrier portions.

The packaging of fragile items such as glass bottles has been accomplished by various packaging techniques including packing the items within receptacles having integral or separately attached compartments, or by placing filler material between items contained in a receptacle. This is a desirable approach where specialty items such as glassware, china and the like are involved, but is not a practical or economical approach for large volume packaging such as is necessary with glass beverage containers and the like.

In such a case, cardboard units folded and glued in a manner to provide separate compartments have primarily been used since they can be manufactured in large numbers, and at a relatively small expense per unit. These cardboard units do have some limitations in that they are deleteriously affected by high humidity, and are not always capable of withstanding the rigors of conventional use. In addition, handling and storage difficulties are encountered with these cardboard units both during the manufacture thereof and at the bottling location. Recently, relatively sturdy compartmented receptacle units made of thermoplastic material have been developed and these units have overcome at least the main disadvantages of cardboard receptacles. In so doing, however, they have increased manufacturing difficulties and the unit cost per receptacle.

Accordingly, it is an object of the present invention to provide a multi-packaging device which is particularly useful in the packaging of fragile items such as glass bottles and the like.

Another object of the present invention is the provision of a new and improved multi-packaging device which will releasably secure a plurality of containers together as a group in substantially non-shifting relationship.

Still another object of the present invention is to provide a new and improved multi-packaging device which prevents engagement or rubbing contact between adjacent articles secured thereby.

More particularly, it is an object of the present invention to provide a one-piece multi-packaging device which firmly, yet yieldably, holds a plurality of containers together in substantially non-shifting relationship for convenient carrying of the containers.

A still further object of the present invention is the provision of a new and improved multi-packaging device which, in addition to the last mentioned object, permits rapid and efficient removal of articles from the package without disturbing either the package or any remaining articles.

Yet another object of the present invention is to provide

a new and improved packaging device which, can be manufactured at low cost under mass manufacturing techniques, and assembled to a group of adjacently positioned articles without undue difficulty.

Still another object of the present invention is the provision of a new and improved multi-packaging device which facilitates stacking of package units for display purposes.

Other objects and advantages will become apparent from the following description when read in conjunction with the accompanying drawings wherein:

FIG. 1 is a perspective view of a package constructed in accordance with the principles of the present invention, and showing the containers of the package in phantom lines;

FIGS. 2–3 are perspective views showing the manner in which the articles or containers of the package are assembled together;

FIG. 4 is a side elevational view of the package shown in FIG. 1;

FIG. 5 is a top plan view of the package shown in FIG. 1;

FIG. 6 is a plan view of the novel carrier blank which is used in conjunction with articles or containers in forming the package shown in FIG. 1;

FIG. 7 is a perspective view of another form of package coming within the purview of the present invention;

FIG. 8 is a plan view of a modified form of carrier blank used with the package shown in FIG. 7;

FIG. 9 is a perspective view of yet another form of package falling within the scope of the present invention;

FIG. 10 is a plan view of a modified carrier blank used in connection with the package illustrated in FIG. 9; and

FIG. 11 is a fragmentary side elevational view, partly in section, illustrating the manner in which a pair of packages of either the FIG. 7 or FIG. 9 type can be stacked one above the other.

Referring now in greater particularity to the drawings, and first to FIG. 1, there is shown a beverage or package unit **10** having a plurality of containers **20**, preferably six in number, which are held in substantially non-shifting relationship to each other by the carrier **40**. The containers **20** shown in the drawings are of the glass bottle variety which are used in dispensing beverages and other products as is well known in the art. Each of the containers **20** is preferably provided with upper and lower annular shoulders **22**, **24** respectively with a cylindrical side wall **26** extending therebetween. Extending upwardly from annular shoulder **22** is a tapering wall **28** generally frustoconical in shape which terminates in an open upper end to which a bottle cap or closure member **30** is applied after the container has been filled.

As noted in the preceding discussion, carrier or receptacle members for retaining and transporting the glass containers must be so designed that they will prevent any engagement between adjacent containers and thus reduce the possibility of container damage or breakage. In accordance with the principles of the present invention, the carrier **40** is provided which is initially in the form of a die cut blank as shown in FIG. 6 of the drawings, and which is capable of being assembled to the containers **20** in the manner shown in FIGS. 2–3 so as to form the package shown in FIG. 1 of the drawings. The die cut blank is preferably made from a resilient, elastic and deformable material such as polyethylene which stretches and deforms to the shape of the containers for resiliently gripping the same as is well known in the art. The carrier blank **40** is subdivided into two carrier sections designated **50** and **70** respectively which are integrally joined to one another by connecting webs as will become apparent from the following discussion.

Carrier member or section **50** is provided with a plurality of annular elements **52** arranged in two juxtaposed rows, each annular element **52** having an aperture **54** which is of a peripheral size smaller than the rim portion of the bottle caps or closure members **30**. The annular elements **52** stretch over the bottle caps or closure members **30** and resiliently grip the neck or tapered wall **28** of the containers for underlying the rim portion of the bottle caps or closure members **30** as is shown in FIG. 1 of the drawings. Removal of the annular elements **52** from underlying engagement with the rim portion of the bottle caps or closure members **30** is facilitated by the provision of tab elements **56** integrally joined to the annular members **52** along the marginal periphery thereof. The mid-portion of the carrier member **50** has a pair of substantially parallel elongated slots **58** formed therein and defining a handle strap **60** extending therebetween. The handle strap **60** will initially be coplanar with the remainder of the carrier member **50**, but upon the assembly of the carrier member over the bottle caps or closure members **30**, the material in the central portion of the carrier is drawn in longitudinally, thus enlarging the scalloped area between adjacent annular elements **52**, and more importantly, drawing the ends of the straps **60** closer together to deform it upwardly out of the plane of the carrier for ready grasping thereof. It will be understood that the handle strap **60** will tend to stretch slightly when grasped by a user, thereby providing adequate clearance for the fingers of the user above the botttle caps or closure members **30**.

The carrier member or section **50** is joined to carrier member or section **70** by a series of connecting webs **62** which extend from and are integrally joined to the mid-portions of each of the carriers as seen in FIG. 6 of the drawings. The outermost connecting webs **62** at opposite ends of the carrier blank **40** initially diverge away from each other so as to encompass the larger carrier **70**, and then assume an angular position adjacent the mid-portion of the carrier **70** to permit the carrier **50** to be disposed in a plane substantially parallel to and spaced upwardly from the carrier **70** as shown in FIG. 1 of the drawings. The innermost connecting webs **62** extend substantially parallel to each other and are interconnected to each other and the outermost connecting webs **62** by the cross-piece members **64** extending between and on opposite sides of the innermost connecting webs **62** as best seen in FIG. 6 of the drawings. Finger elements **66** of generally L-shaped construction are integrally joined to the innermost connecting webs **62** and project therefrom on opposite sides of the outermost cross-piece members **64** which join the innermost and outermost connecting webs **62** at opposite sides of the carrier blank. Connecting webs **62** and cross-piece members **64** not only serve to integrally join carriers **50** and **70** to each other, but cooperate with the finger element **66** to prevent container damage or breakage as will appear from the ensuing discussion.

Carrier member **70** has a slightly different shape than the carrier **50** and is also provided with a series of interconnected annular elements **72** which are arranged in two juxtaposed rows. The apertures **74** of the annular elements **72** are also designed to be constrictive in nature in that they have a peripheral dimension smaller than the annular enlargements **24** of the containers and preferably also smaller than the cylindrical side walls **26** so that they can be stretched and deformed in the same manner as the annular elements **52** of the carrier **50**. It is to be specifically noted that the annular elements **72** when assembled to the containers **20** are formed in the shape of axially extending necks which engage the containers **20** in the vicinity of the annular enlargements **24**.

The assembly of the carrier blank **40** to the containers **20** is accomplished in the following manner: A plurality of containers **20** are first positioned adjacent one another with the sides thereof in substantially abutting relationship. One of the carrier members **50** or **70** of the carrier blank **40** is then assembled to the contianers. In FIG. 2 of the drawings, the carrier member **70** is shown in position on the containers **20**, but it will be understood that the carrier member **50** may be first assembled to the containers if so desired. After one of the carrier members has been assembled to one end of the containers, the other carrier member is grasped either by hand or suitable apparatus and positioned adjacent the other end. In the assembly shown in FIGS. 2–3 of the drawings, the carrier **50** is depicted as being moved from its initial position where it is generally coplanar with the carrier member **70** to a position adjacent the bottle cap or closure member end of the containers.

When the carrier member **50** is thus moved from the position shown in FIG. 2 to that shown in FIG. 3, the connecting webs **62** and cross-piece members **64** will be disposed intermediate each row of containers. Preferably, the finger elements **66** are then disposed between adjacent containers in each row as shown in FIG. 3, and the carrier **50** is then cammed over the bottle caps or closure members **30** at upper end of the containers **20**. When this has been accomplished, the cross-piece members **64** and the finger elements **66** will be gripped between adjacent containers, and will serve as container spacer or cushioning elements in preventing inadvertent engagement between the containers of the package. The maintenance of the cross-piece members **64** and finger elements **66** in this position between adjacent containers is primarily due to the fact that the containers are initially placed adjacent each other with their sides close to, but spaced predetermined distances from each other, and the cross-piece members **64** and finger elements **66** have a thickness at least as great as the predetermined spacing between the containers so that when the carrier blank **40** is assembled to the containers, the cross-piece members **64** and finger elements **66** will be engaged by and retained between adjacent containers in the manner shown in the drawings.

Once the carrier blank **40** is assembled to the containers **20** in the manner described above, the containers may be conveniently transported by grasping the handle strap **60** which is disposed above the plane of the carrier **50** as shown in FIG. 4 of the drawings. The removal of individual containers from the package can be easily accomplished by merely grasping one of the tab elements **56** and forcing the annular elements **52** with which it is associated upwardly and out of engagement with the rim portion of a bottle cap or closure member **30**. Then, it is a relatively simple matter to twist the container **20** and strip it from one of the annular elements **72** in the carrier **70**. The removal of individual containers will not disturb the remaining containers in the package since they will be retained in assembled position by the respective carrier portions **50**, **70**.

A second embodiment of the invention is shown in FIGS. 1–6 embodiment as indicated by the application of identical reference numerals with the suffix *a* employed to designate like parts. As best seen in FIG. 8, the carrier blank **40***a* includes a pair of carrier members **50***a*, **70***a* generally similar to the FIGS. 1–6 embodiment. Each of these carrier members has been slightly modified as will be apparent from an inspection of FIG. 8. Elements **52***a* of carrier member **50***a* are generally elliptical in shape so as to provide apertures **54***a* of the same configuration. These elements **52***a* will be stretched and deformed to conform to the shape of the containers when assembled therewith as seen in FIG. 7. The material portions **55** intermediate adjacent apertures of the two juxtaposed rows of elements **52***a* will serve to space adjacent containers in each row away from each other. The containers **20***a* in any one row of containers will be spaced apart by the portions **57** which interconnect the elements **52***a*, the connecting webs **62***a* and the handle **60***a* to each other. The handle strap or portion **60***a* encompasses the centrally positioned element in the uppermost row of elements **52***a*

and is adapted to be disposed in a plane extending substantially parallel to the axis of the container **20***a* when the carrier blank **40***a* is assembled thereto as will be discussed below.

The carrier member **70***a* is integrally joined to carrier member **50***a* by way of the connecting webs **62***a*. It is to be noted that the connecting webs **62***a* are only two in number as compared with the four connecting webs **62** in the FIGS. 1–6 embodiment. Each of the annular elements **72***a* of the carrier member **70***a* are provided with ring-like elements **76** having a diameter smaller than the apertures **74***a*, and being joined to the material surrounding each of the apertures **72***a* by a series of circumferentially spaced spoke elements **78** which extend tangentially from the ring-like element **76** and are joined to the annular element **72***a* at the inner margin thereof. These ring-like elements **76** and their corresponding spoke elements **78** are adapted to unwind when the lower end of the containers **20***a* is inserted within the constrictive apertures **74***a* so as to embrace and protect a substantial portion of the containers.

In assembling the carrier blank **40***a* to the containers **20***a*, one of the carrier members **50***a*, **70***a* is first assembled to the containers **20***a*. In this particular embodiment, it is preferable to first assemble the carrier **70***a* to the lower end of the containers **20***a* since the containers may be readily positioned over the annular elements **72***a* and assembled therewith without having to deflect one of the carrier members out of the plane of the carrier blank **40***a*. Assuming that this is the procedure adopted, the containers **20***a* either individually or as a group will be inserted through the apertures **74***a* so as to stretch and deform the annular elements **72***a* in the manner described above. The coplanar ring-link elements **76** and their associated spoke elements **78** will be deflected downwardly out of the plane of the annular elements **72** without any deformation taking place due to the configuration and manner of connecting the spoke element **76** between the annular element **72** and the ring-like element **76**. More specifically, it will be appreciated that by making the spoke elements **78** curvilinear in form and having them extend tangentially away from the ring-like element **76**, a relatively large amount of movement of the ring-like element **76** out of the plane of the annular elements **72** without deformation of the webbing can be accomplished. In most cases, however, the webbing will be slightly deformed to lose part of its resilient character when in embracing position on the containers **20***a*. It is to be noted that the annular elements **72***a* will surround and encompass the containers **20***a* in the same manner as the FIGS. 1–6 embodiment.

Once the carrier **70***a* has been assembled to the lower end of the containers, the carrier member or portion **50***a* is grasped either by hand or suitable apparatus and deflected upwardly over the tops of the containers. The elliptical apertures **54***a* will be stretched and deformed when the upper end of the containers is inserted therethrough and will assume the position seen in FIG. 7 of the drawings. The upper end of adjacent containers will be spaced from each other by the material portions **55**, **57** as has been previously discussed, and the lower end of adjacent containers will be spaced from one another by portions **75**, **77** in carriers **70***a* which are complementary to portions **55** and **57** in carrier **50***a*.

It is to be noted that the handle **60***a* is to be disposed intermediate the two rows of containers when applying the elements **52***a* to the upper end of the containers. In this manner, the handle strap or portion **60***a* will assume a substantially upright position to facilitate grasping thereof. It will also be appreciated that the ring-like elements **76** associated with the carrier **70***a* may have an internal diameter slightly larger than that of the bottle cap or closure members **30***a* to permit stacking of adjacent packages with corresponding containers in each package aligned with each other. This is especially useful where the bottom walls of the container are concave axially upwards as is conventionally the case. As seen in FIG. 11 of the drawings, each of the containers **20***a* have a bottom wall **25** which is concave axially upwards. The internal diameter of the ring-like element **76** is larger than the major diameter of the bottle cap or closure member **30***a* so as to accept or accommodate the same therewithin and permit corresponding containers in adjacent packages stacked upon one another to be aligned in the same plane without inadvertent sliding movement between the packages.

Another modified form of the invention is shown in FIGS. 9–10 of the drawings and is generally similar to the embodiments previously discussed as indicated by the application of identical reference numerals with the suffix *b* used to designate like parts. It will be noted that the carrier **70***b* is generally similar to carrier **70***a* as shown in FIG. 8 of the drawings except for the uppermost row of elements **72** and the spoke elements **78***b*. The uppermost row of elements **72***b* are here shown as being elliptical in form to conform to the various modifications made to carrier blank **40***b*. These elliptically shaped elements **72***b* will act much in the same manner as the elliptical elements **52***a* of carrier **50***a* in that they will stretch and resiliently grip designated portions of the containers **20***b*. The spoke elements **78***b* are not curvilinear in shape as the spoke elements **78** in the FIGS. 7–8 embodiment, but they will nevertheless permit a small amount of displacement of the webbing within the apertures **74***b* without deformation.

The essential difference of the FIGS. 9–10 embodiment relate to the modifications made to carrier **50***b*. It is first of all to be noted that the annular elements **52***b* are not disposed in a pair of juxtaposed rows, but are located in a somewhat irregular pattern. A pair of elements **52***b* are located within the confines of the handle **60***b* and are aligned in a horizontal plane, whereas the other elements **52***b* positioned outside of the handle **60***b* are angularly offset to each other and to the elements confined by the handle **60***b*. Tab elements **56***b* are again provided on each of the annular elements **52***b* since they are designed to engage beneath the rim portion of the bottle cap or closure member **30***b* in each container as in the FIGS. 1–6 embodiment.

The connecting webs joining the carriers **50***b* and **70***b* are also interconnected to each other by way of the cross-piece members **64***b* located intermediate thereof. There is also a pair of cross-piece members **64***b* located outside of the connecting webs **62***b* which diverge away from each other and terminate in finger elements **66***b*. In this embodiment, the cross-piece members **64***b* space the containers in each row away from each other, and cooperate with the material portions **75***b*, **77***b* in the carrier member **70***b* at the lower end of the containers to prevent container engagement.

Carrier blank **40***b* is assembled to the containers **20***b* in much the same manner as the previously discussed embodiments. After the containers have been inserted through the constrictive apertures **74***b* of the carrier **70***b*, the carrier **50***b* is positioned adjacent the upper end of the containers. Then, each of the elements **52***b* are cammed over the bottle caps or closure members **30***b* into underlying engagement with the rim portion thereof. It is to be noted that the outermost pairs of annular elements **52***b* engage the outermost containers in the package, and the pair of elements **52***b* confined within the handle strap **60***b* will resiliently grip the innermost pair of containers.

It is important that the cross-piece members **64***b* are disposed intermediate the rows of containers to aid in preventing container engagement, and this may mean that some of the annular elements will have to be assembled to the containers at different times as in the FIGS. 1–6 embodiment.

From the foregoing, it will now be apparent that the present invention contemplates a novel and unique one-piece elastic multi-packaging device which effectively secures a plurality of fragile articles together as a unit

while maintaining the articles at predetermined distances from each other until removed from the package. In certain forms of the invention, the articles are held in nonshifting positions by elements adapted to be positioned therebetween, while in other forms, one or both of the carrier devices themselves may serve to space the articles away from each other. Bottle protecting and stacking elements as well as carrier removal means have been disclosed herein and may be employed in connection with one or more of the forms of the multi-packaging device as desired.

The specific examples of the invention as herein shown and described are to be understood as being illustrative only. Various changes in structure will no doubt occur to those skilled in the art and will be understood as forming a part of this invention insofar as they fall within the spirit and scope of the appended claims.

What is claimed is:

1. A carrier package comprising a plurality of adjacently positioned containers arranged in two transverse rows, and carrier means for embracing and securing said containers adjacent opposite ends thereof to maintain said containers in positions corresponding to the initial container placement, said carrier means comprising a substantially unsupported sheet of stretchable plastic material having coplanar first and second spaced container carrier portions joined to each other by connecting web portions, said connecting web portions being joined to said first and second carrier portions in such a manner that said carrier portions are capable of being positioned in superposed relationship to one another for engaging said containers adjacent opposite ends thereof, said first and second container carrier portions each having a plurality of constrictive apertures therein corresponding in number and arrangement to the transverse rows of containers which are adapted to be stretched by said containers for resiliently gripping and retaining the containers in the aforementioned manner, at least some of said connecting webs adapted to be positioned intermediate the two transverse rows of containers to serve as container cushioning elements, container spacer elements joined to said connecting web portions and being capable of disposition between adjacent containers in each of the two transverse rows to prevent engagement therebetween, and integral handle means secured to one of said container carrier portions for transporting said containers.

2. A one-piece carrier blank adapted to be distorted for retaining and transporting a plurality of containers in substantially fixed positions, comprising a substantially flat and unsupported sheet of resilient, elastic and deformable material and having integral container carrying, spacing and handle portions, said container carrying portion having spaced first and second carrier members each being provided with a plurality of constrictive apertures corresponding to the number of containers and adapted to engage said containers adjacent opposite ends thereof, the material adjacent each of the apertures in said first and second carrier members being substantially continuous and having a peripheral dimension less than that of a corresponding container whereby to cause the material adjacent each aperture to stretch and deform upon the insertion of the containers for gripping and resiliently engaging the same, said spacing portion being associated with at least one of said carrier members and adapted to be disposed between adjacent containers for cooperation with said first and second carrier members to prevent lateral displacement of said containers, said handle portion being in the form of a handle strap associated with one of said carrier members and adapted to be positioned adjacent the uppermost extremity of said containers when said carrier blank is assembled thereto, and means associated with material adjacent the apertures in at least one of said carrier members for protecting and resiliently supporting the end of each of said containers, each of the means associated with the material adjacent the apertures in at least one of said carrier members comprising a ring-like element having a diameter smaller than the aperture with which it is to be associated and being joined to the material surrounding its respective aperture by a series of circumferentially spaced spoke elements extending tangentially from said ring-like element and being joined to the material surrounding said apertures at the inner margin thereof.

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WILLIAM T. DIXSON, JR., *Examiner.*