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CONTAINER STRUCTURE FOR PRODUCT HANDLING, SHIPPING AND DISPLAY

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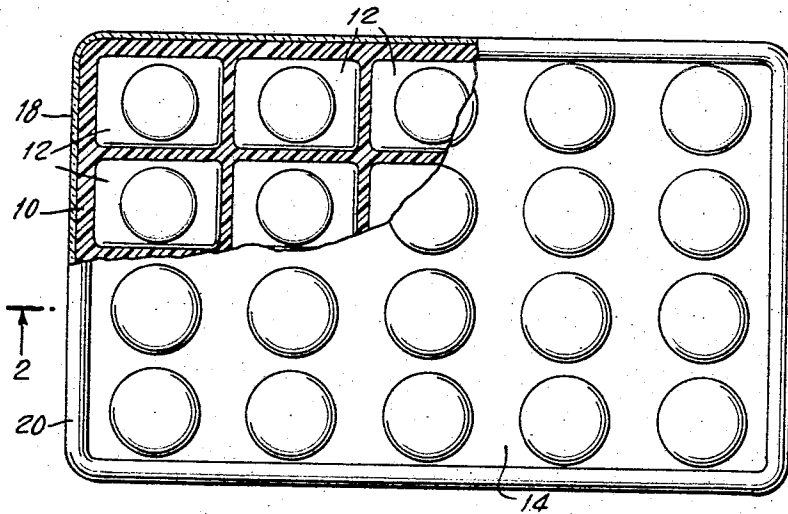


Fig. 1.

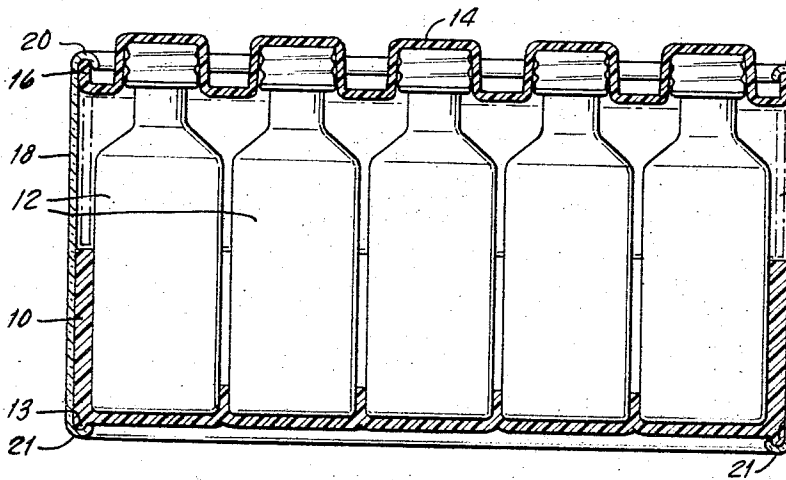


Fig. 2.

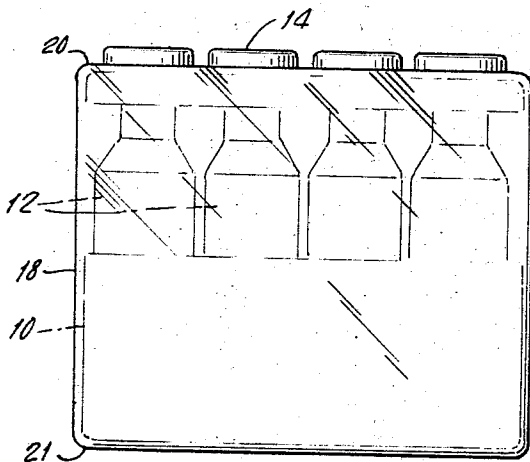


Fig. 3.

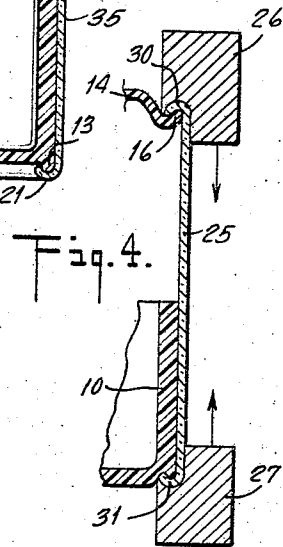


Fig. 4.

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1

2

3,331,502

CONTAINER STRUCTURE FOR PRODUCT HANDLING, SHIPPING AND DISPLAY

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ABSTRACT OF THE DISCLOSURE

The invention provides a new type of structure which utilizes the products, which may be standard glass bottles, as an essential part of the device. It consists of a top product positioning member and a bottom product positioning member which receive, locate and separate the glass bottles, thereby meeting the legal requirements for the distribution of glass containers, and a tension binding member locking the two positioning members to the products and thereby utilizing the products as a compressive structural element essential to the device.

This invention relates to distribution packaging, to carriers or shipping containers for such articles as glass bottles, and numerous objectives are attained by our invention, as follows: The invention—

(1) Completely eliminates the master carton in its usual box form;

(2) Utilizes contoured top members and contoured bottom members to locate and establish the exact positions of the bottles as they are held under stress;

(3) Provides for a maximum store display and avoids interior obstructive details;

(4) Makes possible the easy handling, shipping and stacking of the unitary carriers without the possibility of displacement damage or loss of any of the bottles contained therein;

(5) Reduces the usual shipping weight of containers or crates as hitherto constructed;

(6) Insures that the completed package units are sealed and will not pick up moisture;

(7) Provides the carrier by the assembling of parts from in-plant fabrication from sheet or roll stock so that the inventory necessarily carried at the plant is minimized;

(8) Provides for a ready opening of the carrier, which is practically effortless; and

(10) Makes it possible for the carriers, after the glass bottles are removed, to be stacked in compact bundles and returned to the plant for reuse, or in the alternative for remelting and reusing the materials.

Other objects and advantages will be readily understood by those skilled in the art by reference to the accompanying drawings and the appended specification, which describes our preferred embodiment as illustrative of the invention, without implying any limitation to the scope of its commercial application.

In the drawings:

FIG. 1 is a partially sectional plan view of a distribution package embodying our invention.

FIG. 2 is a sectional elevation on the line 2—2 of FIG. 1.

FIG. 3 is an end elevation of the structure of FIGS. 1 and 2.

FIG. 4 is a fragmentary sectional detail of an alternative structure in which the thermoplastic sleeve is hooked onto the top and bottom but is locked in final position by the use of hot closing dies.

Referring to FIGS. 1, 2 and 3 of the drawings:

The distribution package here shown comprises—

(1) A thermoform tray base 10 which is formed from

a suitable thermoplastic substance such as, for example, a polyvinyl material and is contoured to receive a plurality of articles to be shipped such as medicine bottles 12. The base tray has side walls which extend only part way to the top of the bottles which are thus largely displayed. The tray base has a circumferential groove 13.

(2) A thermoform top 14 contoured to fit closely onto the top of the bottles 12 and having integrally formed therein a flange 16 which is hook shaped in cross section, as clearly shown in FIG. 2.

(3) A protective inner sleeve 15 may, if desired, be mounted on the edge of the bottom tray and thus act as a spacer between the bottles 12 and the outer band, as described below.

(4) A transparent shrink-band 18 which surrounds the entire structure and is formed with a shrink lock 20 at the top and a shrink lock 21 at the bottom. At the top the shrink lock 20 hooks into the flange 16 of the top 14, and the shrink lock 21 hooks onto the groove 13 in the bottom tray 10.

Referring to FIG. 4, the tray 10 is formed like that shown in FIGS. 2 and 3, with circumferential groove 21 in the bottom, and top 14 has the flange 16 and is formed like that of FIGS. 1, 2 and 3. In this structure, however, there is a thermoplastic sleeve 25 which corresponds to sleeve 18 except that its upper and lower edges are flat as it is mounted on the structure.

Then hot closing dies 26 at the top and 27 at the bottom are pressed inwardly parallel to sleeve 25, and the dies are shaped to form a pressed lock 30 at the top and 31 at the bottom.

It is a definite advantage of our invention that the bottom tray and the contoured top may be made in quantities and stacked at the shop where the device is assembled, and thus occupy relatively small space. Nevertheless, they will be ready for immediate use. In the packaging operation the contoured tray base 10 will be fed into a line operation and a feed mechanism will fill the bottles 12 onto the tray base. Then at a reasonable distance ahead the top 14 will be transferred from a stack and mounted on the bottles. If the spacer 15 is employed, it will be inserted around the bottles prior to mounting the top 14 thereon.

A restraining band 35 is next slipped onto the assemblage. This band is preformed of a typical plastic material which has a shrink characteristic when heat is applied to it. A polyethylene material available on the market is suitable for this purpose. The restraining band is wide enough to overlap both the top 14 and the bottom 10.

The final unitizing operation is effected by carrying the structure through a heated tunnel and thereby shrinking the restraining band, which will take the form and position well shown in FIG. 2. The top and bottom edges of the band 35 are curled into final form by the shrinking process.

While the structure and the method of assembling above described and illustrated in FIGS. 1, 2 and 3 of the drawings constitute our preferred arrangement, it is possible to employ a thermoplastic sleeve 25, as shown in FIG. 4, which may not be heat shrinkable.

In this case the sleeve 25 overlaps the top and bottom 14 and 10, and the hot metal dies 26 and 27, which surround the top and bottom of the assemblage, are pressed toward each other and form the locks which grip the top and bottom, as shown in FIG. 4.

The shipping of glass bottles is subject to a definite requirement that the bottles be spaced from each other and held rigidly in position. The structure of our invention has a contoured top member, preferably of heavy thermoplastic material, and a contoured bottom member which receive, locate and separate the glass bottles be-

3

tween them. The arrangement is then firmly bound together by means of the shrink band 18, which surrounds the entire structure and holds the bottles in compression so that they may be handled and shipped without fear of any of the bottles contacting one another or being displaced from their fixed position.

The parts of the structure and their arrangement may be modified by those skilled in the art without departing from the spirit of our invention, and therefore only such limitations as appear in the appended claims should be imposed.

We claim:

1. A distribution package which comprises a thermoplastic contoured tray base having upwardly extending side walls, a contoured bottom receiving portions of bottles closely fitted into the contour form of the base, a thermoplastic contoured top receiving other portions of the bottles, said top locating and separating the bottles in conjunction with the contoured bottom, an uninterrupted thermoplastic band of heat shrinkable material

4

fitted closely over the side walls of the bottom and being heat shrunk to form inwardly hooked flanges at the top and bottom, said flanges strongly gripping the top and bottom continuously and thereby securely hold the parts together.

2. The structure of claim 1 in which the bottom extends downwardly to form a ledge onto which the side member is shrunk.

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