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MULTIPLE PACKAGING APPARATUS

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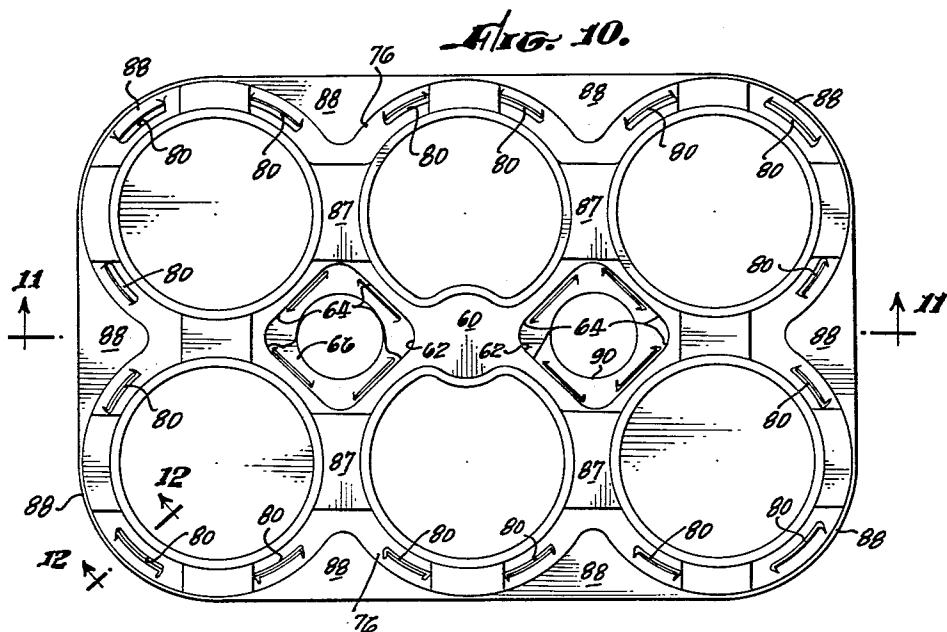
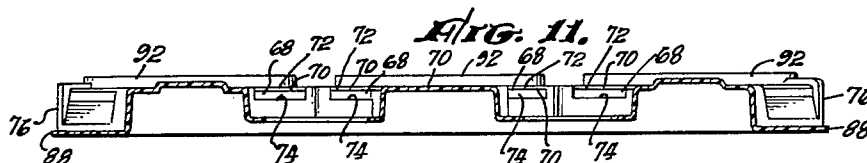
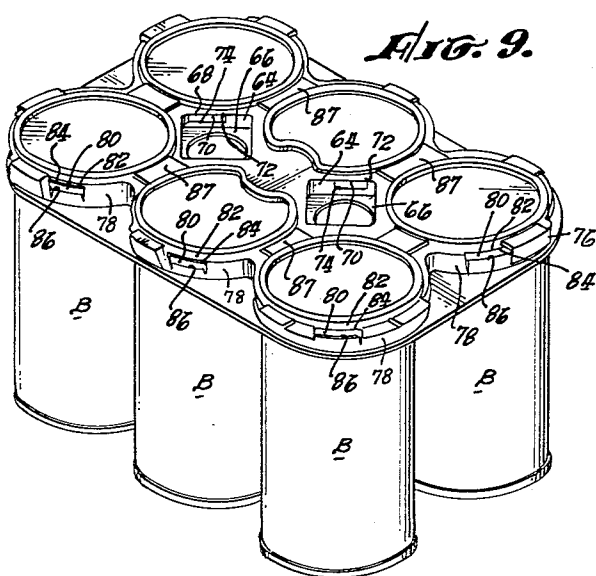
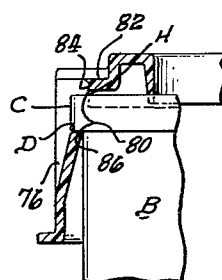


FIG. 12.

THEOPHIL I. BONKOWSKI,
BYRON V. CURRY,
INVENTORS.

By William C. Babcock
ATTORNEY

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MULTIPLE PACKAGING APPARATUS

Teofil L. Bonkowski, 1432 Colby Ave., Los Angeles 25, Calif., and Byron V. Curry, Jr., 6 W. Orange Grove, Arcadia, Calif., assignors of one-third to Arthur B. Willis

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The present invention relates generally to the packaging field, and more particularly to a fastener for removably holding a number of cylindrical cans or containers having beaded ends together in a desired assemblage to facilitate handling thereof as an integral unit.

In recent years cylindrical cans and containers having circumferentially extending beaded ends have come into widespread use in the merchandising of liquid products such as beer, fruit juice, carbonated soft drink beverages, and the like. Also, the use of such containers in the merchandising of both solid and liquid food products has increased enormously. However, while such containers are highly desirable from a merchandising standpoint, in that they occupy but little more space than the contents thereof and are individually easy to handle and open, they have one disadvantage, for a number of such containers are difficult to carry from place to place in a compact manner.

In an effort to overcome this disadvantage, breweries and manufacturers of soft drink beverages have evolved numerous multi-pack holders that removably confine such containers in a predetermined arrangement. These multiple pack holders normally embody folded cardboard sheets which embrace a predetermined quantity of cans, and are provided with carrying handles.

However, such carrying means have a number of major disadvantages. The cardboard holders are relatively expensive, they make a package that is considerably more bulky than if the containers were packed closely together, and the cardboard is heavy and unduly increases the weight of the can or container assembly. Also, due to the heat insulating characteristics of cardboard, it is well known that it takes a considerably longer time to lower the temperature of the contents of containers in a cardboard holder than it does when the containers are directly exposed to refrigerated air.

A major object of the invention is to supply a holding device for cylindrical containers or cans having beaded ends whereby the containers are supported in parallel relationship relative to the side walls thereof, spaced apart from one another, with the containers being oriented in a desired lateral and longitudinal arrangement.

Another object of the invention is to furnish a holding device in which the containers are completely supported by the top and bottom portions thereof, or by the top portions alone, in a manner to permit the lithography or labels thereon to be clearly visible.

Yet another object of the invention is to provide a holding device for cylindrical containers that is simple in construction, inexpensive to manufacture, and has the advantage over cardboard cartons in that it provides a lighter, more compact package, and one in which the contents of the containers are more readily cooled to a desired temperature.

A further object of the invention is to supply container or bottle holders that are particularly adapted for fabrication from polymerized resin, resin-covered or impregnated paper, cardboard or other fibrous material, as well as such lightweight metals as aluminum or alloys thereof.

These and other objects and advantages of the invention will become apparent from the following description of a preferred and alternate forms thereof, and from the accompanying drawings illustrating those forms in which:

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FIGURE 1 illustrates a top plan view of a preferred form of the invention holding six beaded cans together in a desired arrangement;

FIGURE 2 is a vertical cross-sectional view of the preferred form of the invention taken on line 2—2 of FIGURE 1, illustrating the manner in which two of the holding devices can be used to retain a number of cans in fixed spaced relationship;

FIGURE 3 is a perspective view of the preferred form of the invention;

FIGURE 4 is a fragmentary vertical cross-sectional view of the preferred form of the invention showing the manner in which it removably engages the bead of a can stacked thereabove;

FIGURE 5 is a perspective view of the first alternate form of the invention engaging a can;

FIGURE 6 is a vertical cross-sectional view of the first alternate form of the invention taken on line 6—6 of FIGURE 5;

FIGURE 7 is a top plan view of a second alternate form of the invention;

FIGURE 8 is a fragmentary cross-sectional view of the second alternate form of the holder taken on line 8—8 of FIGURE 7;

FIGURE 9 is a perspective view of a third alternate form of the invention;

FIGURE 10 is a top plan view of the third alternate form of the invention;

FIGURE 11 is a vertical cross-sectional view of the third alternate form of the holding device taken on line 11—11 of FIGURE 10; and

FIGURE 12 is a vertical cross-sectional view of the third alternate form of the invention taken on line 12—12 of FIGURE 10.

With continuing reference to the drawings for the general arrangement of the preferred form of the invention, it will be seen in FIGURES 1, 2 and 3 to include a web A that is at least partially disposed between two cylindrical cans or containers B which are in parallel, diametrically aligned relationship. Each container B has circumferential beads C extending around the end portions thereof.

Each bead C includes four circumferential surfaces H, F, G, and D. The fourth circumferential surface D projects outwardly from a cylindrical side wall E forming a part of container B. A second circumferential surface F extends upwardly from said fourth surface D to merge into a third surface G. A first circumferential surface H extends longitudinally from third surface G to merge into an end member J of container B.

The web A has at least two laterally spaced extensions A-1 in the form of walls projecting upwardly and outwardly therefrom. Each extension A-1 has a transversely disposed slot L-1 formed therein that extends partially thereacross and serves to define an outer first wall portion M-1. Portion M-1 is laterally supported relative to web A by two outwardly projecting sections N-1 of extensions A-1 that are situated at opposite ends of slots L-1.

Web A and extensions A-1 are fabricated as an integral unit from a resilient sheet material by molding, vacuum-forming, or other conventional fabrication means. From experience it has been found preferable to use a non-metallic material such as one of the commercially available polymerized resins in the fabrication of web A and extensions A-1. A blend of polymerized high impact styrene and polymerized styrene has been found to be quite satisfactory for this purpose. One blend having the desired strength and resiliency is twenty-five percent (25%) high impact styrene and seventy-five percent (75%) polymerized styrene. Due to the resiliency of the material defining the extensions A-1, the first wall portions

M-1 may be pivotally moved, within limits, relative to web A. When the preferred form of the invention is moved toward two diametrically aligned containers B, sections of the beads C can be forced upwardly through the slots L-1.

Each slot L-1 is defined by a longitudinally extending first edge or engaging means 10, a second edge or engaging means 12, and transverse curved edges 14 that join the ends of edges 10 and 12. When the body is not deformed or when in unassembled position, the slot is obviously narrower than the distance between the surfaces D and G. If it were not narrower, the body would not hold the bead of the can. After a section of a bead C has been forced through one of the slots L-1, the fourth surface D is removably engaged by second engaging means 12 and first surface H by first engaging means 10, as may best be seen in FIGURE 2.

Tabs P-1 are provided that are integrally formed as part of the first wall portions M-1. Tabs P-1 are preferably flat and extend upwardly but a short distance above beads C so as to not interfere with the stacking of containers B one upon the other. Tabs P-1 are used in disengaging the containers B from their gripped position in the invention. When it is desired to disengage a container B, the tab P-1 most adjacent thereto is pivoted to a limited degree. This pivotal movement must be sufficient to widen slot L-1 to the extent that as a container B is moved outwardly and away from the holder, the fourth surface D is moved out of engagement with second edge 12. The container B is then moved parallel to the container remaining in the holder, in a direction to cause the first edge 10 to slide out of contact with second surface H. Thereafter, the container B so moved is free of the holder.

The preferred form of the invention, as shown to the left in FIGURE 1, can also be used to removably hold two additional containers C. In order to hold these additional two containers, two extensions A-2 are provided that are identical in construction to extensions A-1. Extensions A-2 are disposed between extensions A-1, and preferably normal relative thereto. Inasmuch as extensions A-2 are identical to extensions A-1, no detailed description of the structure thereof will be made. The same identifying letters used in designating components of extensions A-1 have been employed in conjunction with extensions A-2, but to which the indicia "-2" has been added.

Extensions A-1 and A-2 are joined by projecting portions Q, as may be seen in FIGURE 1, that extend outwardly from web A and are integrally formed therewith. An opening R may be formed in web A if desired, which is of such cross section that the user's finger (not shown) may be projected therethrough to support the preferred form of the invention and containers B depending therefrom.

To permit the containers B fastened together at the top by the preferred form of the holder to be stacked one atop the other, arcuate ribs S are formed on the upper side of projecting portions Q, and arcuate ribs T are formed on the lower side thereof. Ribs S are of such configuration as to slidably and snugly engage the first surfaces H of an upper assembly of containers B, and the ribs T engage first surfaces H of the lower group of containers B, as shown in FIGURE 4. Due to the ribs S and T, the upper and lower groups of containers B are interlockingly connected to prevent lateral movement therebetween.

A dimensionally stable package or assembly of containers B may be provided by using two of the preferred forms of the invention as shown in FIGURE 2, with one of the holders removably engaging the upper beads C of containers B, and another of the holders engaging the lower beads of the containers. By use of two of the preferred forms of the invention, containers are removably but rigidly held in fixed lateral relationship.

A first alternate form of the invention is shown in

perspective in FIGURE 5, and in section in FIGURE 6. This first alternate form of the holder includes a web 16 that is preferably square and has four wall-like extensions 18 projecting upwardly therefrom. Extensions 18 merge on their upper ends into a continuous flange 20 that preferably has at least a portion thereof parallel to the web 16. Four slots 22 are formed in extensions 18.

Each slot 22 is defined by a first edge or engaging means 24, a second edge or engaging means 26, and connecting end edges 28. A member 30 projects downwardly from first edge 24. When a bead C of a container B is forced through one of the slots 22, the second edge 26 engages the fourth surface D and the member 30 the first surface H, as best shown in FIGURE 5. Thus, four containers B can be removably fastened together by use of the first alternate form of the invention. Four arcuate ribs 32 project upwardly from flange 20 and are adapted to removably engage beads C of an upper assembly of containers. Although the containers B are not shown in FIGURES 1 and 2 as having quadrants of the beads C in contact with one another, this result is easily achieved, if desired, by making the preferred and first alternate forms of the holder in smaller dimension, or by using containers B or larger transverse cross section.

A second alternate form of the invention is shown in FIGURES 7 and 8, which like the preferred and first alternate forms of the device is preferably formed as an integral unit from a suitable resilient material.

The second alternate form of holding device is adapted to concurrently support six containers B, and includes an elongate web 34 that is centrally disposed on the six containers B and extends substantially the length thereof when assembled in the manner shown in FIGURE 7. Web 34 preferably has two longitudinally spaced, downwardly extending portions 36 that are of identical construction. Each portion 36 is defined by four downwardly projecting web extensions 38 which preferably merge at their bottom edges in a sheet-like member 39 that is parallel to web 34. Each web extension 38 has a transverse slot 40 formed therein that defines an upper wall portion 42 situated above the slot 40. Each slot 40 is partially defined by an edge 44 situated below the wall portion 42.

When a section of one of the beads C is forced through one of the slots 40, the edge 44 engages the fourth surface D and that part of wall portion 42 most adjacent the slot engages the first surface H. Wall portions 42 are preferably provided with tabs 46 which project outwardly therefrom. Tabs 46 are used to pivot the wall portions 42 relative to web 34 to permit the containers B to be easily disengaged from the second alternate form of the invention. Tabs 46 are used in the same manner as tabs P-1 of the preferred form of the invention.

A third alternate form of the holding device is shown in FIGURES 9, 10, 11 and 12, that is similar in structure to the second alternate form. Structurally, the third alternate form of the invention differs from the second alternate form in that the upper beads C of containers B are completely enveloped when removably held together thereby.

The third alternate form of the holder includes an elongate web 60 having two longitudinally spaced identical recessed portions 62 formed therein. Each recessed portion is defined by four walls 64, the lower edges of which merge into a member 66 of sheet-like configuration that is preferably parallel to the web 60. Each wall 64 has a slot 68 formed therein that extends partially thereacross. Each slot 68 so divides the wall 64 in which it is formed as to provide a portion 72 having a first edge 70. In FIGURES 10 and 11 it will be seen that each slot 68 is partially defined by a second edge 74 oppositely disposed from first edge 70. When a section of a bead C is forced through one of the slots 68, the fourth surface D of the bead is removably engaged by second edge 74, and the first surface H of the bead by the first edge 70.

To further assure that the containers B will be rigidly but removably held in the third alternate form of the invention and not move laterally relative to one another when carried therein, a continuous inverted L-shaped flange 76 extends from opposite ends of the web 60, and is curved to conform to the configuration of the outer portions of the beads C of the containers B held together as an assembled unit.

The ends of the web 34 have lugs 48, downwardly extending flanges (not shown), or other means for removably engaging fourth surfaces D formed as a part thereof, as shown in FIGURE 7. Web 34 is preferably formed with two longitudinally spaced first fingers 50 that project outwardly from one side thereof, and two identical second fingers 50 which project outwardly from the opposite side that are in transverse alignment with the first two fingers. Each finger 50 is formed with two arcuate, longitudinally extending sides 51 that overlie portions of the beads C of the containers B held together as an assembly in the second alternate form of the invention.

Each finger 50 has two downwardly extending lugs 53 on opposite sides of the outer portion thereof which removably engage the fourth surfaces D of containers B. Fingers 50 are only desirable if the containers B are of such transverse cross section that they are spaced from one another when removably held in the second alternate form of the invention. If the containers B are of such transverse cross section that the beads C thereof are in contact at quadrant points, the fingers 50 as well as the lugs 48 may be eliminated.

When the second alternate form of the invention is used to removably hold six containers B together that are in contact at quadrant points on their beads C, those portions of the second alternate form of the invention outwardly from the six lines 52 shown in FIGURE 7 may be eliminated therefrom.

The flange 76 includes a downwardly extending wall 78 in which a number of longitudinally spaced slots 80 are formed. Slots 80 serve to divide the wall 78 to provide a number of portions 82 that have first edges 84. Slots 80 are partially defined by second edges 86 oppositely disposed from first edges 84. Four fingers 87 project outwardly from web 60, two on each side thereof, to merge at their outer ends in flange 76. When the beads C are forced into the slots 68, they are concurrently forced through the slots 80. Those sections of the beads C extending through slots 68 have the fourth surfaces D thereof removably engaged by the second edges 86. When the containers B are so held, the first surfaces H of the beads C are contacted by the first edges 84.

Should it be desired to further strengthen the structure of the third alternate form of the invention, flat sheet-like reinforcing members 88 may be provided that extend from the lower edges of wall 78.

The third alternate form of the invention is conveniently carried, together with the containers B depending therefrom, by the use of two openings 90 formed in the members 66. The thumb and forefinger (not shown) of a user may be projected through the openings 90 to support the third alternate form of the holding device therefrom. Six upwardly extending circular ribs 92 are formed on the upper portion of the third alternate form of the invention which are adapted to removably engage the beads C of containers B stacked thereabove. Such engagement prevents lateral movement of assembled containers B held together by the third alternate form of the invention when stacked one above the other. The third form of the invention, like the forms previously described hereinabove, is formed as an integral unit from a resilient material, preferably a polymerized resin. The use of polymerized resins in the fabrication of the various forms of the invention described herein provides the advantages that it is not adversely affected by exposure to a cold, damp atmosphere for a prolonged period of time, and can be brightly colored to readily

indicate to a purchaser that assembled container units in a stack thereof are removably held together, and are to be purchased as units.

Although the present invention is fully capable of achieving the objects and providing the advantages hereinbefore mentioned it is to be understood that it is merely illustrative of the presently preferred embodiments thereof and we do not mean to be limited to the details of construction herein shown and described, other than as defined in the appended claims.

We claim:

1. A package including a plurality of cans, a device for removably holding the plurality of cans together in a predetermined relationship after said device has been moved downwardly relative to said cans when in said relationship, which cans define a partially closed opening therebetween, with each of said cans including a side wall having a circumferentially extending bead on the upper end portion thereof, each of which beads is defined by first and second radially spaced, longitudinally extending cylindrical surfaces, with said first and second surfaces merging at their upper extremities into a third surface, and said second surface terminating on the lower end thereof in a fourth surface that is disposed outwardly from said side wall, which device comprises:

a body molded of a resilient polymerized resin material defining a plurality of first engaging means disposed in contact with said first surfaces, a plurality of second engaging means that slide along said second surface during assembly and finally snap into engagement with said fourth surfaces, each first and second engaging means cooperatively forming an elongated slot therebetween that is narrower in width than the distance between said third and fourth surfaces when said body is not deformed, each slot being so disposed that it is overlying a part of one of said third surfaces when said cans are in said relationship, each first engaging means being deformed to exert forces directed outwardly with respect to each can when said body is forcefully moved downwardly relative to said cans, and said second engaging means as said body is so moved being first deformed laterally away from said first engaging means to slide downwardly over said second surface, with each of said second engaging means moving laterally toward its respective first engaging means after said second engaging means has moved below said fourth surface to a position where the bead of the can is resiliently retained between said first and second engaging means and at least a portion of said second means is disposed under each fourth surface to removably hold said cans together and support said cans in a depending position from said body, with any one of said cans being separable from said body due to the resiliency of said material defining the same when said can is pivoted upwardly and outwardly about its body engaging bead portion to a position where, when an outward pull is exerted on said can, said first and second engaging means slide on said first and second surfaces and said can separates from said body.

2. A device as defined in claim 1 wherein said body includes:

- (a) a central portion;
- (b) a plurality of walls extending upwardly and outwardly from said central portion; and
- (c) a continuous flange that connects the upper ends of said walls, with the parts of said walls directly above said slots being said first engaging means, and the parts of said wall directly below said slots being said second engaging means.

3. A device as defined in claim 1 wherein said body further includes:

- a plurality of tabs that project outwardly from said first engaging means, with each of said tabs when

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pivoted upwardly and inwardly relative to said body moving said first engaging means with which it is associated away from one of said second engaging means to facilitate the removal of a particular one of said cans from said device.

4. A device as defined in claim 2 which further includes:

a plurality of spaced ribs that project upwardly from said flange and are adapted to slidably contact the first surfaces of additional cans stacked above said cans held by said device to prevent lateral movement of said stacked cans.

5. A device as defined in claim 2 wherein the walls have the form of:

a plurality of fingers extending outwardly from said flange, with each of said fingers overlying a space between two of said cans.

6. A device as defined in claim 2 wherein said parts of said walls directly above said slots have curved lower edges that are of substantially the same radius of curvature as that of said first surfaces.

7. A device as defined in claim 2 wherein said parts

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of said walls directly under said slots have convex upper edges that are of substantially the same radius of curvature as that of said beads.

8. A device as defined in claim 5 which further includes:

a plurality of arcuate extensions that connect the outwardly disposed ends of said fingers to reinforce the same.

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