

Sept. 14, 1965

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3,206,017

CLUSTER OF CONTAINER COVERS

Filed Jan. 9, 1962

2 Sheets-Sheet 1

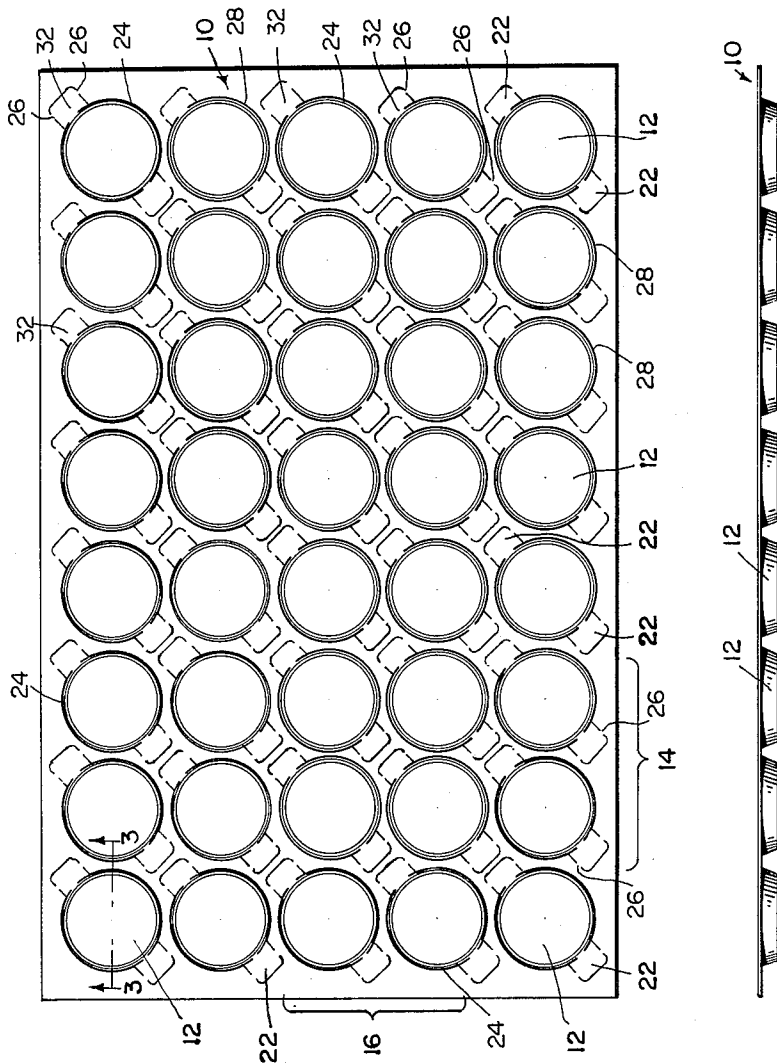


FIG. 1

FIG. 2

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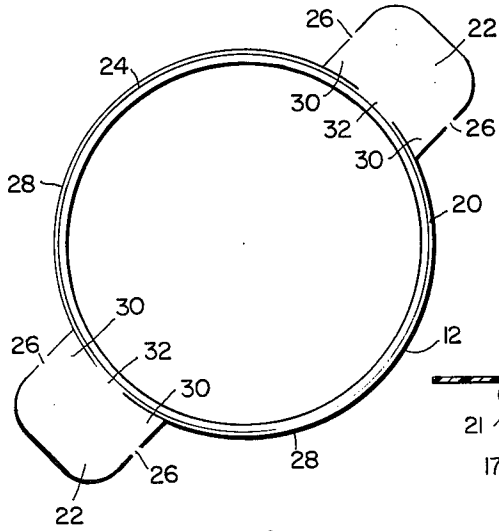


FIG. 4

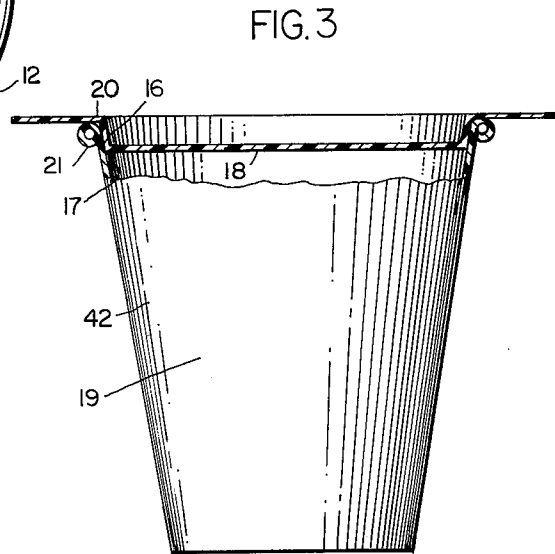


FIG. 3

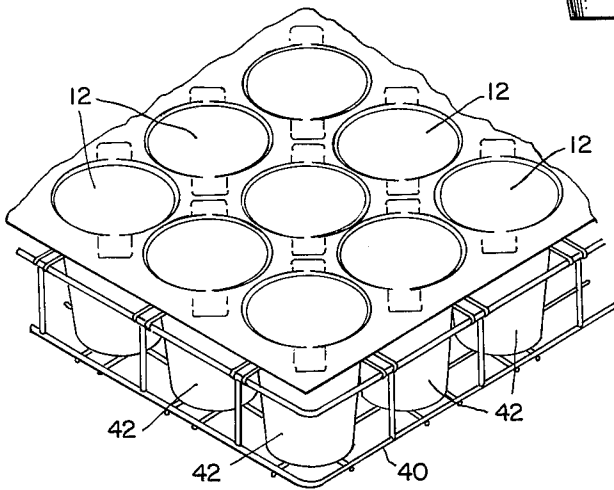


FIG. 5

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**CLUSTER OF CONTAINER COVERS**

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 8 Claims. (Cl. 206-56)

This invention relates to disposable container covers and more particularly comprises a plurality of connected lids which may be simultaneously applied to a like number of cups.

Recently machines and equipment have been developed to simultaneously fill a plurality of cups with beverage and thereafter cover the cups to maintain and preserve the quality of said beverage for sale at parks, fairs and other like large gatherings. The need for such equipment will be appreciated upon consideration of the fact that a relatively large number of such cups of beverage must be dispensed in a relatively short period of time. In order to take full advantage of the sales opportunities afforded, the supply of filled cups must be capable of being quickly replenished and such equipment makes it possible for the vendor to simultaneously provide a plurality of such cups. Briefly, this is accomplished as follows: trays containing twelve or more empty cups are placed in a dispensing machine which successively discharges ice and prepared beverage into each of these cups. Thereafter, the trays are moved from the beverage filling position to a station where the lids are placed on each of the filled cups. The cups may be covered very rapidly if the lids are formed as a cluster connected together so that in one operation the lids may be placed over all of the cups in the tray. Tightening of the lids on the cups may then be accomplished either manually or by a machine designed for that purpose. Some means must be incorporated into the cluster of lids and/or the machinery for thereafter separating each of the lids to allow the vendor to sell the filled drinks to his customers.

One important object of this invention is to provide a cluster of lids joined together so that all of the lids in the cluster may be aligned with the like number of cups in a tray or carrier.

Another important object of this invention is to provide a plurality of connected lids which may be readily separated.

Yet another important object of this invention is to provide means in a cluster of connected lids which enable the lids to move relative to one another while remaining connected so that each may compensate for some misregistration with its particular cup in the carrying tray.

To accomplish these and other objects, the plurality of lids are formed by any suitable process in a thin and flexible sheet of plastic material such as an acetate and are retained in the sheet. Each lid is provided with an internal dependent wall which cooperates with the interior of the rim of a cup to form a closure for it. The wall converges in a downwardly direction to define a lead angle to compensate for any misregistration between the cup and the lid. A horizontally oriented flange extends outwardly from the upper edge of the internal dependent wall and may rest on the cup rim and serve as a stop to prevent excessive penetration of the dependent wall into the mouth of the cup. Extending outwardly from the horizontal flange are a pair of opposed ears that facilitate removal of each lid from the sheet and later removal of the lid from the cup on which it is mounted. Scored lines may be cut in the sheet to define the limits of each cup lid with its ears.

These and other features and objects of this invention will be better understood and appreciated from the following detailed description of one embodiment thereof,

selected for purposes of illustration and shown in the accompanying drawing, in which:

FIG. 1 is a top view of a lid cluster constructed in accordance with this invention;

FIG. 2 is a front view of the cluster shown in FIG. 1;

FIG. 3 is a cross sectional view taken along the corresponding section line in FIG. 1 and showing the individual lid mounted on a cup;

FIG. 4 is an enlarged top view of a single lid separated from the cluster of FIG. 1 but suggesting the features which join it to the sheet; and

FIG. 5 is a perspective view showing the application of a portion of a cluster of lids to a number of cups in a tray or carrier.

The cluster of lids shown in the drawing are formed in a sheet 10 of plastic material such as acetate approximately .010" in thickness. FIG. 1 suggests that forty lids 12 are formed in the sheet and it will be appreciated that the cluster may contain substantially any number of lids. The individual lids 12 formed in the sheet are oriented in transverse and longitudinal rows 14 and 15 normal to one another and are spaced equidistantly in the sheet.

Each of the lids 12 as illustrated in FIG. 3 includes an internal depending wall 16 that converges in a downwardly direction, a circular central panel 18 joining the lower edge of the wall 16, and a horizontal flange 20 that extends outwardly from the top of the wall 16. As shown in FIG. 3, the depending wall 16 converges slightly to form an angle of approximately 5° with the axis of the wall to provide a lead angle to facilitate insertion of the wall 16 into the mouth 17 or top of the cup 19 defined by the cup rim 21. As will be explained more fully below, this lead angle serves both as a guide for inserting the wall 16 within the cup 19 and as a means for forming a seal with the rim.

In FIGS. 1 and 4 each lid 12 is shown to include a pair of ears 22 displaced 180° from one another about the horizontal flange 20. These ears are oriented to extend diagonally of the sheet 10 displaced approximately 45° from the direction of the transverse and longitudinal rows 14 and 15 of lids. By so orienting the ears 22, the ears of adjacent lids do not interfere with one another and there is virtually no limit upon the spacing available between adjacent lids. Moreover, as will be apparent below, with this particular orientation the individual lids may be separately removed from the sheet.

The horizontal flange 20 and the ears 22 lie in the plane of the sheet 10 and their limits are defined by the scored line 24. Thus, the scored line defines the margin or edge of each of the lids. The cutting die or other instrument used to make the scored line 24 does not provide a continuous cut about each lid in the sheet but rather it is interrupted at selected locations to form break-through tabs 26 on the sides of the ears 22. The width of the tabs 26 will be determined by the shear strength of the plastic sheet material 10 used. It will also be noted in FIG. 4 that the arcuate sections 28 of the scored line 24 extend inwardly of the edges 30 of the ears so that the sections are separated but a short distance at their ends by the unbroken bridge 21.

The scored line 24 including both the arcuate sections 28 and the sections which define the edges of the ears 22 enable each lid to be readily broken from the sheet 10. By forming the scored line 24 so that it extends through the sheet, each of the lids 12 may be readily separated from the sheet 10 by thumb pressure applied to its ears 22. It is only necessary for the thumb pressure to sever the break-through tabs 26 to free the lid from the sheet. The break-through tabs 26 should be substantially smaller than the width of the bridge 32 so that thumb pressure will break or sever the tabs 26 and not the bridges 32.

Typically, the break-through tabs may be approximately  $\frac{1}{16}$  of an inch in width while the bridges 32 may be  $\frac{1}{4}$  inch wide.

It will be appreciated that the diameter of the arcuate cuts formed in the sheet to define the periphery of each lid is not dependent upon the precise size of the lids formed therein. Thus, although smaller lids are formed in the sheet, the same cutting die or other instrument used to form the scored lines about larger lids may be employed. This would result only in a larger horizontal margin or flange 20 about the depending wall 16.

The narrow break-through tabs 26 preferably provide the only connection between each lid and the sheet 10 in which the lid is formed, and because the bridges 32 are relatively narrow with respect to the lid diameter they apply only very limited resistance to movement of the individual lid relative to the plane of the sheet. That is, the bridges 32 enable the lid in which they are provided to pivot about the axis which they define so that the lid axis may align itself with the axis of the corresponding cup to be covered. This feature in cooperation with the lead angle of the downwardly depending wall 16 of the lid will enable the lid to assume the registration position with the cup.

As suggested in the introduction, the lid cluster allows an operator to quickly cap a plurality of cups sitting in a tray. Preferably, the cluster is used in conjunction with some form of high capacity device for filling the cups in a tray which thereafter serves as a carrying device for the vendor at a large gathering. After the cups are filled, the lid cluster is placed upon the rims of the cups in the tray. The center to center spacing of the lids in the sheet corresponds to the center to center spacing of the cups in the tray. In this manner, reasonable alignment between the cups and the lids is assured. The lead angle of the internal depending wall 16 compensates for any misalignment or misregistration of the lids with the cups. After so positioning the cluster of lids, the operator may either manually press each lid so that its wall and flange 16 and 20, respectively, form a seal with the rim 21 of the corresponding cup, or preferably this is done automatically and while the cluster remains intact. The vendor may then take the tray with the covered, filled cups into the gathering to sell the drinks. This arrangement is suggested in FIG. 5 wherein the tray 40 is shown to carry a plurality of cups 42 each covered by lids 12 forming part of the sheet. The cluster of lids serves to steady the cups in the rack as it prevents each cup from shaking independently. At the time of sale, the vendor may break from the sheet the lid covering the cup to be handed to the customer by pressing his thumbs on the opposite ears 22 to tear the break-through tabs 26. The cup then may be lifted from the tray as it is wholly detached from the other covered cups on it. The ears 22 remain on the cover and may be used by the purchaser as a handy means of peeling the lid from the cup. The vendor continues to sell the drinks in this manner until all are gone. When the last drink is sold from the tray, the vendor is left with the skeleton of the sheet 10; that is, the sheet minus each of the lids initially contained in it.

From the foregoing description the several advantages of a cluster of lids forming part of but readily separable from a sheet of plastic material will readily be appreciated. The lids may be formed very inexpensively and constitute a substantial time saver when used in the manner described. Because many modifications of the cluster shown may be made without departing from the spirit of this invention, it is not intended that the breadth of this invention be limited to the specific embodiment illustrated and described. Rather, it is intended that the breadth of this invention be determined by the appended claims and their equivalents.

What is claimed is:

1. A cluster of lids comprising a sheet of plastic material formed with a plurality of lids therein with the pe-

riperies of the lids severed from the sheet and each capable of covering a cup while forming part of the sheet made up of the lids,

and a pair of outwardly extending ears disposed opposite one another and forming part of each lid with a portion of the periphery of each ear unsevered from the sheet, said ears providing the only attachment between each lid and the sheet.

2. A cluster of lids comprising a sheet of material formed with a plurality of parallel rows of lids, scored lines provided in the sheet and separating the periphery of each of the lids from the sheet and describing outwardly extending ears as part of each lid at its periphery, the sole connection between lids holding them together in the sheet being through said ears,

and interruptions in the score lines confined to the ears forming break-through tabs to retain the lids in the cluster.

3. A cluster of lids as defined in claim 2 further characterized by

each of said lids having a downwardly extending circular wall adapted to fit within and engage the lip of a cup which it covers.

4. A cluster of lids comprising a sheet of plastic material formed with a plurality of lids therein, outwardly extending ears forming part of each lid on opposite sides of the lid,

break-through tabs joining the ears of the lid with the remaining portion of the sheet and forming the sole connection of the lids to the sheet, and bridging means wider than the tabs joining said ears to the lid.

5. An article of manufacture comprising a sheet of material formed with a plurality of cup lids aligned in parallel rows with the lids in the several rows forming transverse rows normal to said parallel rows,

horizontal outwardly extending margins provided as an integral part of each lid adapted to extend beyond the rim of cups covered by the lids,

and ears extending outwardly from and connected to the edges of the margins severable means connecting the ears to the sheet, the connections between the ears and the said margins forming the only connection to the lids holding them together in the sheet.

6. A cluster of lids comprising a sheet of plastic material formed with a plurality of lids therein with the peripheries of the lids severed from the sheet and each capable of covering a cup while forming part of the sheet made up of the lids,

a downwardly extending circular wall forming part of each lid and adapted to fit within and engage the lip of a cup which it covers,

and outwardly extending ears forming part of each lid with a portion of the periphery of each ear unsevered from the sheet.

7. A cluster of lids as defined in claim 6 further characterized by

said ears being disposed opposite one another and providing the only attachment between each lid and the sheet enabling each lid to pivot about an axis defined by the ears so that it may move relative to the sheet.

8. An article of manufacture comprising a sheet of material formed with a plurality of cup lids aligned in parallel rows with the lids in the several rows forming transverse rows normal to said parallel rows,

horizontal outwardly extending margins provided as an integral part of each lid encircling each lid and severed from the sheet and adapted to extend beyond the rims of cups covered by the lids, ears formed as part of the sheet and extending outwardly from and connected to the edges of the margins forming the only connection to the lids holding them together in sheet form,

5

and downwardly extending circular walls provided in each lid for engaging the lips of cups to close the cups when the lids remain connected together through the ears.

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6

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