May 24, 1960 J. E. PRESS ET AL 2,937,783

DRINKING CUP

Filed May 6, 1957 2 Sheets-Sheet 1

FIG. 1

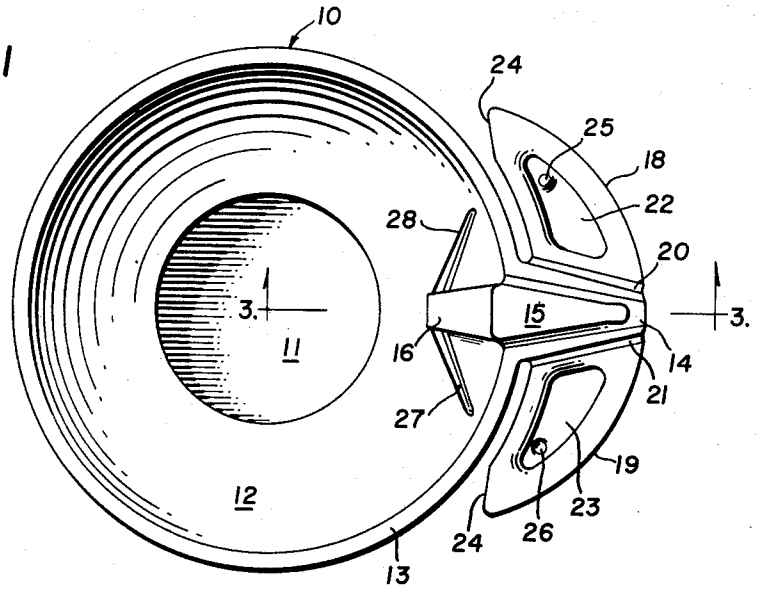


FIG. 2

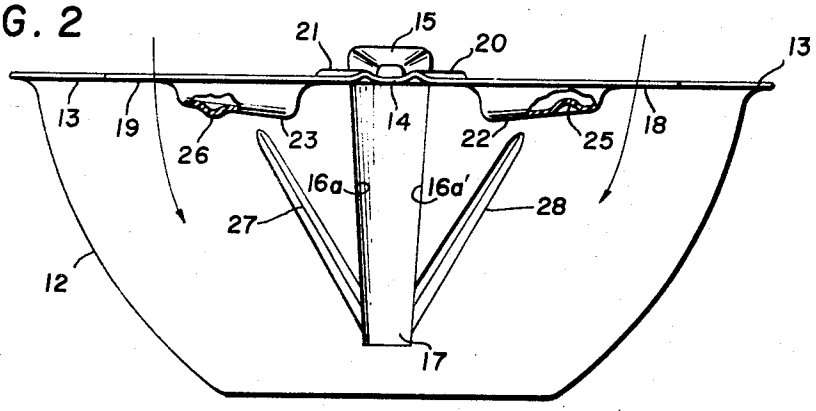
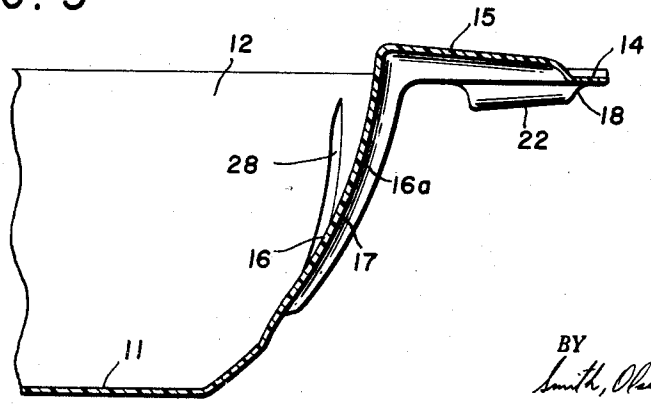


FIG. 3



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May 24, 1960 J. E. PRESS ET AL 2,937,783

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Filed May 6, 1957 2 Sheets-Sheet 2

FIG. 4

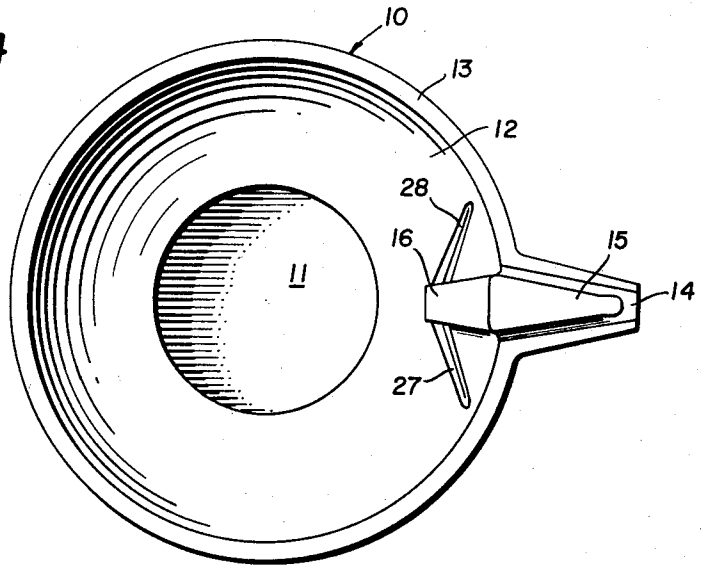


FIG. 5

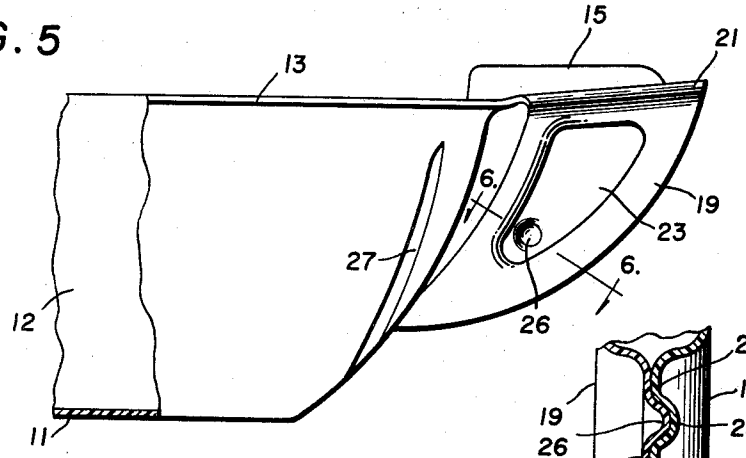


FIG. 7

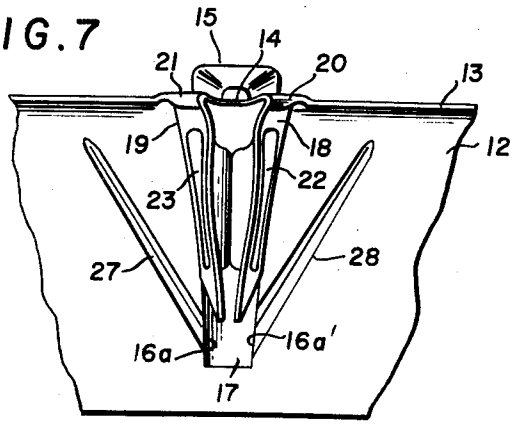


FIG. 6

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DRINKING CUP

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6 Claims. (Cl. 220—94)

This invention relates to drinking cups and other like vessels, and more particularly to an improved drinking cup that is very inexpensive to produce and which, if desired, may be discarded after use.

One of the important objects of the present invention is to provide a drinking cup of the above character that may be closely nested, one within another, during shipment or storage, but which is provided with a handle structure which, when in use, has a shape, appearance and disposition on the outside of the cup substantially like the rigid handle of a conventional coffee cup. In accordance with the broad object just stated, it is a further object of the present invention to provide a drinking cup having a handle thereon which occupies a substantially flat, horizontal position when the cup is stored or shipped in a nested condition with respect to other like cups, thereby permitting very close nesting of the cups so as to require a minimum of space, the horizontally disposed handle structures of the superimposed cups being adapted to lie directly upon each other. Another object of the invention is to provide a cup of the kind just stated wherein ear-like parts of the horizontally disposed handle structure may be folded downwardly and latched in a downwardly directed position when the cup is about to be used, thereby providing an erected handle structure having substantially the same general shape and "feel" as the rigid handle of a conventional coffee cup. Another object of the invention is to provide a cup of the aforesaid character which may be easily and inexpensively formed as a single piece, and which may be formed of a single sheet of thermo-plastic material such, for example, as polystyrene.

These and other objects and advantages of the present invention will be apparent from the following description of a preferred embodiment thereof, taken with the accompanying drawings, wherein:

Fig. 1 is a plan view of a drinking cup or other bowl-like vessel constructed in accordance with the present invention, the ears or ear-like parts of the handle portion of the cup being shown in the generally horizontal position they occupy during shipment or storage prior to use of the cup;

Fig. 2 is an enlarged elevational view, with certain portions broken away, of the cup taken from the right hand side of Fig. 1;

Fig. 3 is a fragmentary sectional view, on an enlarged scale, taken substantially along the line 3—3 in Fig. 1;

Fig. 4 is a plan view of the cup showing the condition when the ears of the handle portion of the cup have been folded downwardly to their usable position;

Fig. 5 is an enlarged elevational view of the handle portion of the cup, with the ears thereof in their downwardly folded position;

Fig. 6 is an enlarged fragmentary cross-section taken through the ears substantially along the lines 6—6 in Fig. 5; and

Fig. 7 is an elevational view of the cup taken from the right hand side of Fig. 5.

As illustrated, the cup comprises a bowl-shaped vessel 10 having a circular bottom 11 and a circular, upwardly

extending and outwardly flared wall 12 that terminates at its upper edge in an outwardly extending lip 13. As will later be explained, the entire cup is preferably formed from a single sheet of relatively thin thermoplastic material, thereby permitting formation of the cup to be inexpensively accomplished by any suitable and well known fluid pressure or vacuum forming process.

An outwardly or radially projecting web-like handle element 14 is integrally formed on the lip 13 of the cup on one side thereof. The central portion of this web-like handle element, in the present instance, has an upwardly embossed rib 15 formed therein, and the inner end of the rib 15 is joined or merges with the upper end of an inwardly embossed rib 16 that is formed in the wall 12 of the bowl. The rib 16 extends downwardly from the rib 15 toward the bottom 11 of the bowl, it being observed that the sides 16*a* of the rib 16 are spaced apart and form a groove (designated by the numeral 17 for future reference) in the outer surface of the wall 12 of the bowl below the handle element 14.

A pair of laterally projecting ears 18 and 19 are integrally formed on the opposite side edges of the handle element 14 along respective lines of fold 20 and 21. The central portion of each ear is downwardly embossed, as at 22 and 23, to provide increased rigidity for the ears, and the inner edges of the ears adjacent the outer edge of the lip 13 follow the curvature of the lip but are spaced outwardly therefrom. The outer edges of the ears may be pleasingly curved, as illustrated in the drawings, and the outer extremity of each ear, on the side facing the lip 13, is provided with a latching edge 24 (Fig. 1) which will again be referred to. The downwardly embossed portion 22 of the ear 18 is preferably provided with an upwardly embossed dimple 25, and the corresponding downwardly embossed portion 23 of the ear 19 is provided with a downwardly embossed dimple 26, as perhaps best seen in Figs. 1 and 2.

The cups, in the form just described, may be quickly and inexpensively formed in great numbers either by injection mold processes or by fluid pressure or vacuum molding processes. When vacuum molding is used in the production of the cups, a plurality of cups may be vacuum formed from a single sheet of thin, inexpensive, relatively flexible thermoplastic material, such as high impact type polystyrene, it being understood that the cups, in the condition thereof shown in Figs. 1 to 3, will be cut or stamped out of the sheet after the formation of the cups has been completed. It will also be apparent that the cups, in this condition, may conveniently be closely stacked or nested, one within the other, in substantially unlimited numbers since the bowls and the handle portions of the cups will be identical and may be received snugly one within the other. Shipment and storage of stacks of the closely nested cups therefore requires only a minimum of space, and shipping and storage expenses are accordingly minimized.

When it is desired to use the present cup, the cup, in the condition thereof illustrated in Figs. 1 to 3, is held in the hand and the ears 18 and 19 thereof are gripped between the fingers of one hand and folded downwardly about their respective lines of fold 20 and 21 in the direction of the arrows shown in Fig. 2. During this folding movement of the ears 18 and 19, the latching edges 24 thereof are moved toward the wall 12 of the cup due to the fact that, in the present instance, the lines of fold 20 and 21 diverge toward the bowl. As the ears 18 and 19 approach their ultimate downwardly directed positions, their latching edges 24 engage the wall 12 of the bowl and then snap into the groove 17 provided in the outer surface of the bowl by the inwardly embossed rib 16. The snapping entry of the latching edges 24 of the ears 18 and 19 into the groove 17 retains the ears in

their downwardly folded positions, in which condition the ears, in conjunction with the handle element **14**, provide an upstanding handle that looks much like a conventional cup handle and is usable for lifting the cup in the same manner as the rigid handle of an ordinary coffee cup. At the time the latching edges **24** of the ears are received by the groove **17**, the lower or under surfaces of the downwardly embossed portions **22** and **23** of the ears come into contact with each other, as shown in Fig. 7. At the same time, the dimple **26** enters the recessed side of the dimple **25**, thereby later preventing any tendency for sliding movement between the embossed portions **22** and **23** of the ears **18** and **19** during use of the cup.

Due to the fact that the present cup may be so inexpensively produced of light weight, thin plastic material, it may be thrown away after use. However, if it is desired to reuse the cup, the ears **18** and **19** or the wall of the cup may be flexed slightly to disengage the ears from the groove **17**, whereupon the ears may be folded upwardly to their original positions, illustrated in Figs. 1 and 2. The cups may then be restacked or renested, one with another, and stored away for future use, the horizontally positioned ears **18** and **19** of the cups overlying each other and thus permitting close nesting or stacking.

When the present cup is formed of very thin and relatively flexible plastic material, as described above, the ribs **15** and **16** serve materially to reinforce or rigidify the handle portion of the cup and the area of the bowl adjacent the handle. In some instances it may be desirable to rigidify the bowl in a greater area than that effected by the rib **16**, in which case additional ribs, such as the upwardly extending and diverging ribs **27** and **28** may be embossed or formed in the wall **12** of the bowl adjacent the rib **16**.

The foregoing description of one embodiment of the invention has been given for clearness of understanding only and no unnecessary limitations should be understood to be intended thereby, for it will be apparent to those skilled in the art that numerous variations may be made in the cup within the spirit and scope of the appended claims.

We claim:

1. A single-piece, lightweight drinking cup or the like formed entirely of thin plastic material, comprising a bowl, a radially projecting handle element integrally formed on the outside of said bowl adjacent to its upper edge, an inwardly embossed and upwardly extending rib formed in the wall of said bowl below said handle element, said rib tending to rigidify said bowl in the area of said handle element and providing a groove in the outer surface of said bowl below said handle element, and a pair of laterally projecting ears integrally formed on opposite side edges of said handle element along lines of fold, said ears being foldable downwardly with respect to said handle element and along said lines of fold to downwardly directed positions wherein the outer ends of said ears snap into the groove provided by said rib, said groove retaining said ears in said downwardly directed positions so as to provide a completed handle by which said bowl may be lifted.

2. A single-piece, lightweight drinking cup or the like formed entirely of thin plastic material, comprising a bowl, a radially projecting handle element integrally formed on the outside of said bowl adjacent to its upper edge, an upwardly embossed radially extending rib formed in the web of said handle element, an inwardly embossed and upwardly extending second rib formed in the wall of said bowl and joining said first mentioned rib, said ribs tending to rigidify both said handle element and the area of said wall adjacent to said handle element, and said second rib also providing an upwardly extending groove in the outer surface of said bowl below said handle element, and a pair of laterally projecting ears integrally formed on opposite side edges of said handle element along lines of fold, said ears being foldable downwardly with respect to said handle element and along said lines of fold to downwardly directed positions wherein the outer ends of said ears snap into the groove provided by said second rib, said groove retaining said ears in said downwardly directed positions so as to provide a completed handle by which said bowl may be lifted.

3. A single-piece drinking cup or the like comprising, a vessel for receiving a liquid, an outwardly extending web-like handle element integrally formed on the upper edge of said vessel and lying generally in the plane of said upper edge, and a pair of laterally projecting web-like ears integrally formed on opposite side edges of said handle element along lines of fold, said ears normally being disposed generally in the plane of said upper edge of said vessel so that a plurality of said drinking cups may be closely nested one within another during storage and shipment, said ears being foldable downwardly with respect to said lines of fold to downwardly directed positions, the outer surface of said vessel having a groove therein for receiving and retaining an edge of each of said ears when in said downwardly directed positions to provide a completed handle by which said vessel may be lifted.

4. A single-piece drinking cup or the like comprising a bowl, a radially projecting handle element integrally formed on the outside of said bowl, and a pair of laterally projecting ears integrally formed on opposite side edges of said handle element, said ears being foldable downwardly with respect to said handle element to downwardly directed positions, said bowl having a retaining groove formed on the outer surface thereof below said handle element, said groove retaining said ears in said downwardly directed positions so as to provide a completed handle by which said bowl may be lifted.

5. A single-piece drinking cup or the like comprising a bowl, a radially projecting handle element integrally formed on the outside of said bowl, a pair of laterally projecting ears integrally formed on opposite side edges of said handle element, said ears being foldable downwardly with respect to said handle element to downwardly directed positions, and a pair of abutment shoulders formed on said bowl below said handle element to engage and to retain said ears in said downwardly directed positions so as to provide a completed handle by which said bowl may be lifted.

6. A single-piece drinking cup or the like comprising, a vessel for receiving a liquid, an outwardly extending web-like handle element integrally formed on the upper edge of said vessel and lying generally in the plane of said upper edge, a pair of laterally projecting web-like ears integrally formed on opposite side edges of said handle element along lines of fold, said ears normally being disposed generally in the plane of said upper edge of said vessel so that a plurality of said drinking cups may be closely nested one within another during storage and shipment, said ears being foldable downwardly with respect to said lines of fold to downwardly directed positions, latching edges formed on the outer ends of said ears, retaining means formed on said vessel below said handle element to engage and to retain said latching edges when said ears are in downwardly directed positions to provide a completed vertically extending handle by which said vessel may be lifted, and means for preventing sliding movement of said ears with respect to each other when said ears are in said downwardly directed positions.

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