REINFORCING STRUCTURE FOR RECEIVING A BAIL

5 Claims, 4 Drawing Figs.

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ABSTRACT: A bucket of moldable plastic material having a tapered side wall structure and a pair of parallel spaced annular reinforcing flanges adjacent to but spaced from the open end. On diametrically opposite sides of the bucket and located between the flanges is a reinforcing structure bridging the space between the flanges, for attachment of a bail. The reinforcing structure is hollow and molded together with the bucket and its flanges and of wall thickness comparable to that of the bucket. The lower side of the reinforcing structure has an opening extending through the adjacent annular flange and a bail having locking lugs at each end extends through the lateral wall of the reinforcing structure into the hollow interior.
REINFORCING STRUCTURE FOR RECEIVING A BAIL


In view of a progressively decreasing cost of raw material, namely synthetic plastic resin material from which containers can be made, there has been a sharp increase in demand for buckets and containers constructed of such material. Commercial plastic materials have a number of attributes desirable as container material, other than price, among which is a malleability of their inert chemical quality which makes them safe containers for a great variety of different materials which cannot be conveniently packed in metal containers without special linings. Although plastics have desirable characteristics, they also have physical characteristics which must be taken into special consideration. For example, if a container needs to be made strong while at the same time preserving a relatively thin wall thickness, the plastic material usually needs to be relatively flexible. This characteristic makes the container difficult to close with a sealed closure, physically strong enough to avoid springing a leak during shipment of a full container. Although containers can be made stiff enough to minimize dependable closure problems, such plastic materials when of stiff consistency are much more easily cracked when a full container is subjected to the customary shipping and handling program.

It is therefore among the objects of the invention to provide a new and improved container of commercial plastic material which is relatively inexpensive to construct, which is sufficiently strong to avoid rupture during usual handling and storage procedures, and which is stiff enough at least adjacent to the open end so that the container can be effectively closed with a sealed closure. Another object of the invention is to provide a new and improved container made of commercially available synthetic plastic resin which can be formed by molding, which is molded in character sufficient to permit a relatively wide and varied field of use, and constructed in such fashion that a bail can be attached to it for lifting it about.

Still another object of the invention is to provide a new and improved container made of commercially available synthetic plastic resin material wherein the sidewall structure is kept relatively thin commensurate with needs for strength and durability, and in which there is provided enough reinforcing of the wall structure at only those portions where such additional reinforcing is needed in order to provide a finished package which can be easily packed, sealed, handled, and shipped.

With these and other objects in view, the invention consists in the construction, arrangement, and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter set forth, pointed out in the appended claims and illustrated in the accompanying drawings.

In the drawings:

FIG. 1 is a side elevational view of a bucket with a closure in place.

FIG. 2 is a partial side elevational view in the direction 2-2 of FIG. 1.

FIG. 3 is a partial side elevational view in the direction 2-2 of FIG. 1.

FIG. 4 is a cross-sectional view on the line 4-4 of FIG. 1.

FIG. 5 is an enlargement of the invention shown for the purpose of illustrating the bucket shown as consisting of a body indicated generally by the reference character 10 for which there is a closure indicated generally by the reference character 11.

The body comprises a circumferentially extending side wall structure 12 having an open end 13 and a bottom end 14. A bottom wall of the bucket, is molded integrally with the sidewall structure 12 to which it is joined at the bottom end 14.

Adjacent the open end 13 is an annular bead 16 forming a rim, the bead being likewise integrally molded with the sidewall structure 12.

The closure 11 is of the type disclosed in co-pending application Ser. No. 781,556, filed Dec. 5, 1968, and consists of a center area 17 around the perimeter of which is an annular flange 18 from which extends an annular flange 19. An inner flange 20, braced by gussets 21 is adapted to engage the inner surface of the sidewall structure 12 adjacent the open end 13, fitting much in the character of a cork. An outer flange 22 is formed with a multiplicity of tabs 23 separated by slots 24, the outer flange with its tabs forming with the inner flange 20 a substantially U-shaped channel 25.

At the outer end of the U-shaped channel 25 is a pocket 26 which is adapted to receive the annular bead 16 and also contain at its bottom an annular relatively soft seal 27.

Extending around the inner surface of the outer flange 22, as exemplified by the tabs 23, is an annular bead 28 forming a shoulder adapted to engage beneath the outer round portion of the annular bead 16 at the top of the sidewall structure 12. The tabs 23 are flexible, and spring outwardly as the closure is applied, permitting the bead 28 to be forced over the bead 16 and subsequently press beneath it as the tabs spring inwardly. To hold the tabs in their innermost position of engagement, there is provided a ring 29 which may be a steel wire or band adapted to be slipped into a groove 30 to hold it in the selected position of engagement. A stop flange 31 prevents the ring 29 from being slipped off in a downward direction, the flange 19 preventing it from slipping upwardly in a downward direction, where it may be confined in a groove 32. To facilitate sliding the ring from a position in the groove prevents the ring 29 from being slipped off in a downward direction, the flange 19 preventing it from slipping free in an upward direction, where it may be confined in a groove 32. To facilitate sliding the to a position in the groove 30 recesses 33 are provided in the flange 19 through which an appropriate tool may be projected.

As evidenced by FIGS. 1, 2 and 3, the sidewall structure tapers progressively inwardly from the open end 13, which is of largest diameter, to the bottom end 14, which is of smallest diameter. To reinforce and render more rigid, the portion of the sidewall structure adjacent the open end 13, there are provided a pair of parallel annular outer and inner flanges 35 and 36, respectively, which are both molded simultaneously with the molding of the sidewall structure previously described.

Intermediate the flanges 35 and 36 and bridging the distance between them at two points, namely on diametrically opposite sides of the bucket, are two individual reinforcing structures indicated generally by the reference character 37, which are identical in form.

Each reinforcing structure consists of a lateral wall 38 which extends slightly beyond the outermost edges of the flanges 35 and 36 and which is to a degree flexible. Extending from vertical side edges of the lateral wall are sloping walls 39 and 40, the sloping walls being integrally joined to and molded with the sidewall structure 12. These sloping walls 39 and 40 extend from one flange 35 to the other flange 36 and are integrally molded with the flanges. The lower side of the reinforcing structure is provided with an opening 41 of ample dimensions, substantially equal to the cross-sectional shape of the reinforcing structure itself, the opening 41 facing toward the bottom of the bucket. As will be noted from an examination of FIGS. 3 and 4, the reinforcing structure 37 is hollow and provides an inner chamber 42. The structures 37 last defined provide a substantial reinforcing effect extending between the flanges 35 and 36, thereby to improve the stability of the sidewall structure 12 itself.

The reinforcing structures 37, moreover, are so constructed and located that they perform a second function, namely that of an anchor for a bail 45. Opposite ends of the bail 45 are identical and each consists of a right angularly turned portion 46 which is adapted to be inserted through a hole 47 in the lateral wall 38 of the reinforcing structure. To further anchor the bail in position, an end section 48 is turned at right angles to the portion 47 and likewise at right angles to the bail itself, thereby to provide locking lugs to interlock the engagement of
3,550,807

3. The bail 45 with the reinforcing structure 37. By reason of making the lateral wall 38 somewhat flexible, the lateral wall can be either stretched or depressed yieldably to facilitate insertion of the end section 48 and portion 46 through the lateral wall and into the chamber 42 on each side. Additionally, by reason of spacing the lateral wall 38 diametrically outwardly with respect to the outermost edge of the flange 35, the bail itself is located entirely clear of the closure 11 when the bail is swung to an upper or carrying position.

1. In a bucket of semiyieldable synthetic plastic moldable resin material a body for said bucket comprising a circumferentially extending sidewall structure having a bottom end and an open end, a rim at the open end and a bottom wall at the bottom end, said sidewall structure being of smaller diameter at the bottom end than at the rim and having a progressively varying diameter therebetween, a pair of axially spaced parallel annular flanges of said resin material adjacent but spaced inwardly from said rim, and a pair of reinforcing structures of said resin material molded in place between said flanges and bridging the distance therebetween at diametrically opposite locations with respect to the sidewall structure, each said reinforcing structure being hollow and having an open side at a location where the reinforcing structure forms a junction with the annular flange on the side remote from the rim, said open side facing toward the bottom end, said reinforcing structure including a lateral wall having a hole therein for attachment of a bail.

2. A bucket as defined in claim 1 wherein a top section of each said reinforcing structures comprises a portion of the annular flange on the side nearest the rim and side sections are in integrally molded relationship with both annular flanges and the sidewall structure.

3. A bucket as defined in claim 1 wherein the lateral wall of said reinforcing structure has a location diametrically further outward than outer edges of said annular flanges.

4. A bucket as defined in claim 1 including a closure having a sealing flange surrounding the exterior of the side wall adjacent said rim and wherein the lateral wall of said reinforcing structure is at a location diametrically further outward than said closure, whereby a bail, when applied to the reinforcing structure is adapted to clear said closure.

5. A bucket as defined in claim 1 wherein there is a bail having ends bent laterally of the axis thereof forming locking lugs and wherein the lateral wall of the reinforcing structure is yieldable to enable insertion of the locking lug into locked relationship with the reinforcing structure.