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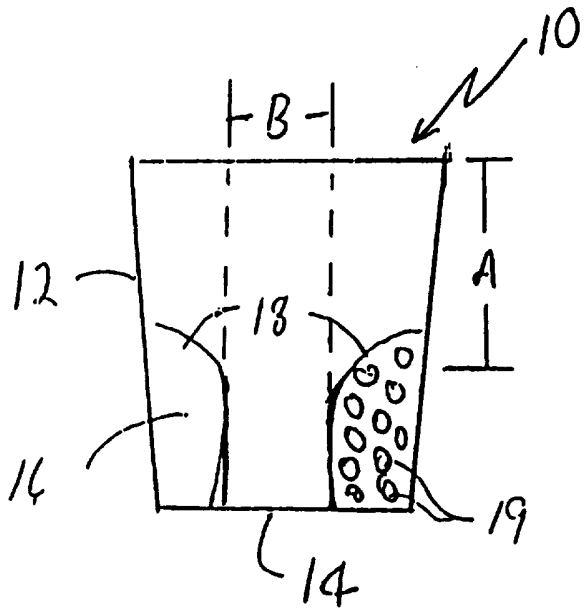
(54) Title: SAFETY CONTAINER

(57) Abstract

A safety container is disclosed in the form of a liquid-tight vessel (10) having a sidewall (12) and an open top and a plurality of internal inserts (16) deployed in the vessel to constrict access through the open top to prevent entrapment of a small child in the vessel (10). The inserts (16) are generally flat and located substantially at right angles to the bottom and sidewall of the container and are preferably integral therewith and disposed about the sidewall in radial symmetry. The internal inserts (16) are a fraction of the length of the sidewall (12).



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SAFETY CONTAINER

Field of the Invention

The present invention is directed generally to liquid-tight containers which have removable lids covering open tops and, in particular, to the provision of a child-safe five-gallon pail or other such container which obviates the danger of small children being trapped and accidentally drowned in liquid contained in open containers with minimum effect on the manufacture and usefulness of the container.

Related Art

Buckets and other generally cylindrical or conical vessels used for carrying and containing liquids are one of humanity's oldest and most common utensils. Such devices have been used for literally thousands of years. Prior to about 1960, however, buckets or pails were generally made from metal. The 1960's brought the advent of the now familiar molded plastic five-gallon pail. Today, it is estimated that as many as 170,000,000 molded plastic five-gallon pails are produced in the U. S. and Canada alone each year. In general, there is a proliferation of plastic containers, particularly those in sizes ranging from about five gallons (approximately 20 liters) and upward which are used to ship and store wide variety of useful materials in both liquid and solid bulk form used by professionals and consumers alike in a variety of areas. Once the contents have been used, the five-gallon pail makes a very useful maintenance or refuse container. It may be filled with water for home uses or become filled with rain water or the like if discarded in trash or at landfills. Presently, consumers can also purchase empty five-gallon buckets in hardware stores. It will be appreciated that five-gallon pails and other containers even up to 55 gallon (U.S.) drums or the like proliferate the landscape and homes throughout the country.

Although the dimensions of these pails vary, the

five-gallon pails typically are about 12 inches in diameter and about 14 inches tall. The 12-inch opening is slightly wider than the head and torso of most children under about the age of 2, and the rim of the bucket is just below the height of the heads of children just learning to pull themselves up as they learn to walk. Because the containers are designed for stability against tipping, children can pull themselves up using the bucket without tipping it over. They may then lean over the rim and, because of their high center of gravity, topple into the bucket headfirst. While larger children have no problem pulling themselves back out, and while even toddlers can extricate themselves from smaller-sized containers, the toddlers are just top-heavy and weak enough to become trapped in a five-gallon container. A child can drown in minutes, even in reasonably small amounts of liquid which may be found in the bottom of such a container.

This situation presents a safety concern that is very real and heretofore has not been successfully addressed. Accordingly, there exists a need to provide a molded plastic five-gallon pail into which a toddler can tumble headfirst without becoming trapped and drowning in the contents of the bucket.

Accordingly, it is a primary object of the present invention to provide a molded plastic five-gallon pail which can be used around children without fear of injury.

Another object of the invention is to provide a child-safe five-gallon pail of unitary construction which is easily molded in plastic using present techniques therefor and competitive in cost with an ordinary molded plastic five-gallon pail.

A further object of the present invention is the provision of a child-safe molded plastic five-gallon pail that is stronger than an ordinary molded plastic five-gallon pail.

A still further object of the present invention is

the provision of a child-safe molded plastic five-gallon pail in which the safety features produce minimum impact on the usefulness of the pail.

Yet a still further object of the invention is to provide a low-cost, child-safe molded plastic five-gallon pail containing a plurality of radially disposed inserts in the sidewalls to prevent immersion of a child's head in the pail by constricting the available opening size.

SUMMARY OF THE INVENTION

By means of the present invention, a danger to children associated with prior plastic molded five-gallon pails is overcome by the provision of an integral system of inserts connected to the pail sidewall which prevent the entry of a child's head beyond a point where a child can still easily free himself/herself from the pail. In one embodiment, three or four equally radially spaced planar inserts are provided deployed to project inwardly from the sidewall toward the center of the pail and which extend from the bottom of the pail upward ending a designed distance, possibly about 4 to 6 inches or more from the top of the pail. The upper portions of the inserts are rounded to eliminate any sharp edges. The inserts extend inward a sufficient distance to reduce the available open diameter to a measurement less than that necessary to accommodate the head of a toddler so that a child who inadvertently tumbles headfirst into the pail will easily be able to pull himself/herself out without harm. The edges of the inserts are also designed to avoid injury when encountered.

The pail of the invention can be readily fabricated in the usual way by conventional molding techniques, with the inserts molded as integral parts of the pail structure such that a one-piece molded structure is retained.

The inserts also act as vertical stabilizers which greatly strengthen the pail sidewalls and bottom, especially with respect to resisting vertical compressive

forces. This is a benefit in storage and shipping as it allows higher stacking of the containers in some circumstances. Alternatively, the additional structural strength associated with integral sidewall inserts, in cases where the additional strength is of no particular benefit, allows the pail sidewall thickness to be reduced even to the point where less total material may be required to fabricate the pail.

The shape and location, along with the number of inserts can be varied in accordance with the invention as long as the amount of free vertical space or bead space at the top of the pail and the reduced central diameter is limited to a safe amount. In some applications, the inserts may not extend fully to the bottom of the pail, i.e., may be integral with the sidewall only.

The vertical disposition of the inserts does not interfere with the ability to pour contents of the pail and the open center configuration allows central mechanical stirring of the material if required. The inserts may also be provided with one or more openings or holes, if desired, to facilitate mixing. The interference with the pouring out of more viscous materials is also minimized by the planar construction. The configuration also is compatible with state-of-the-art injection or blow molding techniques for one-piece construction.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, wherein like numerals describe like parts throughout the same:

FIGURE 1 is an elevational sectional view of a pail including the inserts of the invention; and

FIGURE 2 is a top view of the pail of FIGURE 1.

DETAILED DESCRIPTION

Attention is directed to FIGURES 1 and 2 in which one preferred embodiment of a molded plastic five-gallon pail is shown provided with the inserts of the invention. The pail depicted by the reference numeral 10 is

generally cylindrical although it may be in the form of an upward expanding conical section, includes sidewall 12 and integral bottom 14. The inserts are shown at 16 and are an integral part of the pail extending from the bottom 14 to a point along the sidewall at substantially full width to a distance "A" from the top. The members 16 extend inward from the sidewall 12 toward the center of the pail cylinder or conic section generally perpendicular to the bottom and to a tangent of the sidewall at the point of origin. The upper portion of each insert or web is generally gently tapered at 18 and ends at a maximum safe distance from the top of the pail. Openings 19 may be provided in the baffles or inserts 16 to help accommodate mixing or working of the contents.

As can be seen best in FIGURE 2, the combination of four inserts spaced approximately 90 degrees apart defines an inner open space shown dotted at 20 which has a diameter "B" at a distance "A" from the top of the pail 10. The opening diameter "B" is designed to be smaller than the head of a toddler and the depth "A" shallow enough so that the child who leans over and tumbles in headfirst or otherwise finds himself/herself in such an undesirable position can readily recover and easily extricate himself/herself from the pail without injury. Inserts 16 are tapered and dulled to prevent or minimize impact or contact injury.

The inserts or webs leave sufficient central opening area (diameter = "B") to accommodate a mechanized mixing device to address the contents of the pail if they require mixing prior to use. Of course the vertical nature of the inserts or webs does not interfere with the pouring of liquids from the pail and only minimally interferes with troweling out of viscous materials such as carpet adhesives or drywall mud.

The filled pails are normally capped by a generally planar lid having a circumferential recessed rim opening which snaps over a mating bead formed in the top rim of

the sidewall and additional means may be used to seal it in place until first opened. The lids normally provided with a generally flat central region which readily permits stacking of the containers. Filled, capped pails are typically stacked several high on top of each lower pail. Additional pallets may even be stacked vertically so that a great deal of vertical force may be applied to lower pails. Typical filled, present-day molded five-gallon pails carry from about 30 to 70 pounds of material and can be stacked no more than about six high for warehousing or three high for shipment. It will be appreciated, however, that the integral web formed among the sidewall 12, each insert 16 and the bottom 14 provides significant reinforcing strength to both the sidewall 12 and the bottom 14 in the pail of the present invention. The inserts of the present invention impart additional reinforcing to both the sidewall and the bottoms such that much higher stacking is safely accommodated for a pail of a given thickness.

The pails are generally fabricated of thermoplastic materials by extrusion or blow molding. They are typically high or low density polyethylene, polypropylene, other polyalkene or other relatively plentiful and inexpensive materials susceptible of similar processing and which are generally inert to a variety of types of contents. The pails may have one or more circumferential (peripheral) stiffening ribs molded integrally in the sidewall and a beaded upper lip which accommodates a circumferential recess in a matching, generally flat lid which snaps into place and may be sealed in any of several ways once the container is filled with product. It will be readily appreciated by those skilled in the art that the inserts of the invention also can form an integral part of a one-piece molded pail because they do not interfere with the normal molding process in which the molded article is separated from the mold by being ejected outward, closed end first

from the mold. The inserts as configured are open to the container top and thus present no impediment to present molding ejection practices.

In fact, the addition of safety inserts of the invention adds little cost to the manufacture of the pails and the small amount of additional plastic material required may be more than offset by the value of the increased pail strength. For uses when the additional pail strength is not a priority or where the product is relatively light, the added strength imparted by the integral webbing formed by the inserts will allow the thickness of material to actually be decreased without loss of pail strength, thereby actually reducing the amount of plastic used. It is desirable that the distance above the inserts be maintained as large as possible to facilitate stacking of empty containers.

While the illustrative embodiment uses four inserts spaced approximately 90 degrees apart, it will be appreciated that the invention contemplates any convenient number and spacing that enables accomplishment of the proper central restriction. Also, while the five-gallon pail is the most popular container of its class presently in use domestically, and presents the greatest danger, the concept of the invention can be applied to any sized container by varying the number and size of the inserts used. In some cases, the inserts need not be attached to the bottom of the container to accomplish the designed safety restriction near the top. In these instances, they will be carried entirely by the sidewall, leaving the bottom of the pail open full width.

This invention has been described herein in considerable detail in order to comply with the patent statutes and to provide those skilled in the art with the information needed to apply the novel principles and to construct and use such specialized components as are required. However, it is to be understood that the invention can be carried out by specifically different

equipment and devices, and that various modifications, both as to the equipment details and operating procedures, can be accomplished without departing from the scope of the invention itself.

CLAIMS

In the claims:

1. A container comprising a liquid-tight vessel having a sidewall and an open top, and having an access of sufficient size and having sufficient volume to accommodate the head and upper torso of a small child, comprising a vessel including a plurality of internal insert means deployed in said vessel to constrict the access opening through said open top in a manner to prevent entrapment of a small child in said vessel.

2. The container of Claim 1 wherein said plurality of insert means are generally flat baffle members located substantially at right angles to the bottom and sidewall of said container and disposed about said sidewall in radial symmetry.

3. The container of Claim 1 wherein said plurality of insert means are integral with said sidewall.

4. The container of Claim 1 wherein said plurality of integral insert means are integral with both said sidewall and said bottom.

5. The container of Claim 1 wherein said plurality of internal insert means are a fraction of the length of said sidewall.

6. The container of Claim 1 wherein said plurality of insert means are radially disposed inwardly directed vertical fins.

7. The container of Claim 2 wherein said plurality of insert means are provided with one or more openings therethrough.

8. The container of Claim 6 wherein said plurality

of insert means are provided with one or more openings therethrough.

9. The container of Claim 1 wherein the number of insert means is four.

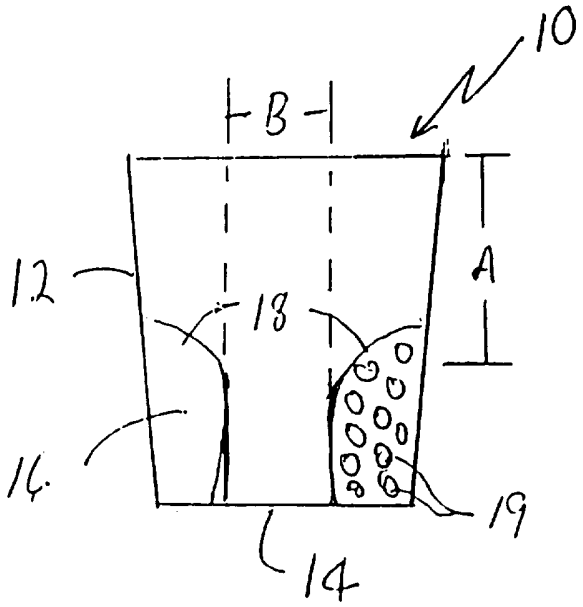

Figure 1

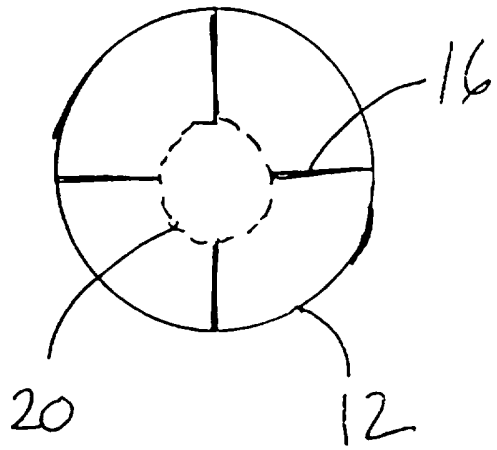

Figure 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US95/16339

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :B65D 85/20
US CL :220/506, 528, 555, 735
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 220/506, 528, 555, 735

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 5,186,329 (FOGELBERG) 16 FEBRUARY 1993 ENTIRE DOCUMENT	1-9
A	US, A, 3,070,226 (MATHISON) 25 DECEMBER 1962	
A	US, A, 3,593,873 (VONK) 20 JULY 1971	

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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