

United States Patent [19]
Atkinson

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[54] ACID CARBOY

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[51] Int. Cl..... B65d 7/42

[58] **Field of Search**..... 220/66, 69, 85 K

[57] **ABSTRACT**

An acid carboy consisting of a generally cylindrical stainless steel tank having elastomeric skirts at the ends thereof characterized by a novel cross-sectional configuration whereby the carboy can be handled in a variety of ways without substantial damage.

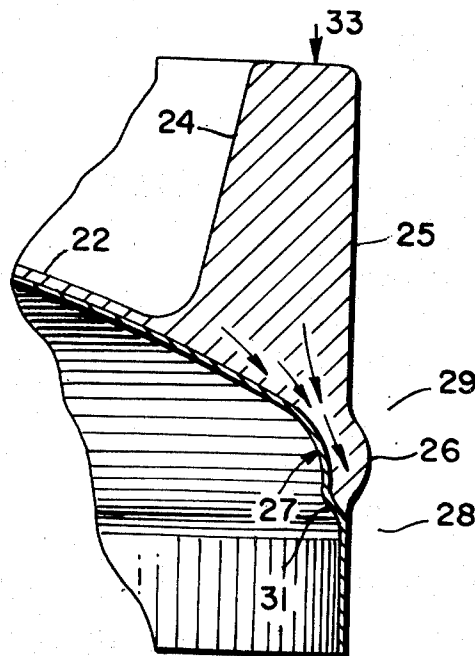
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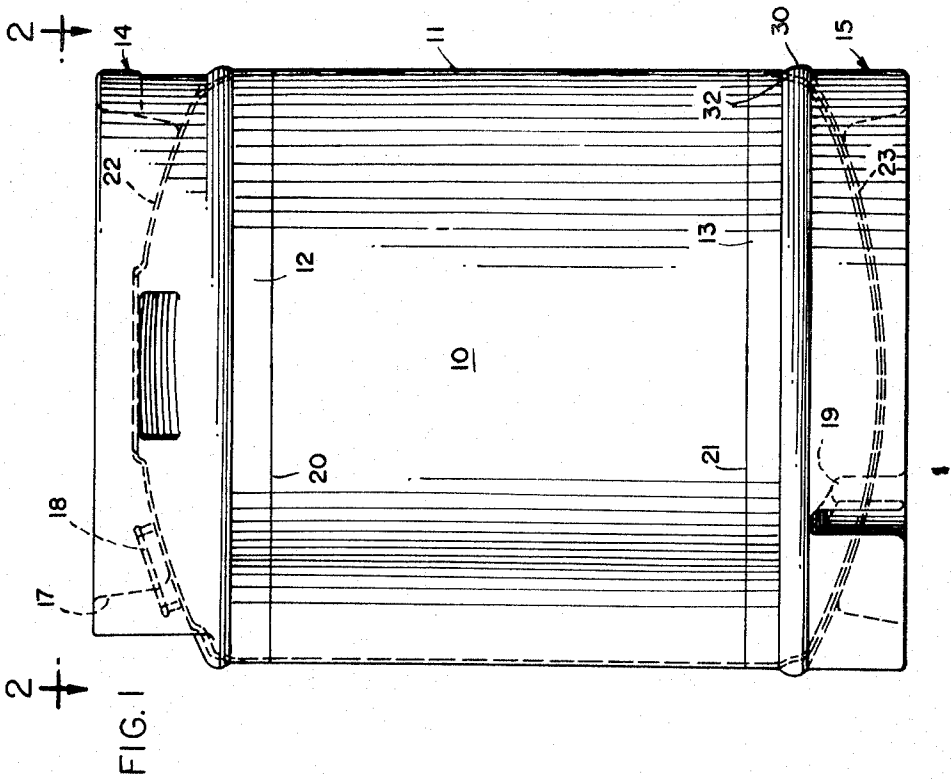
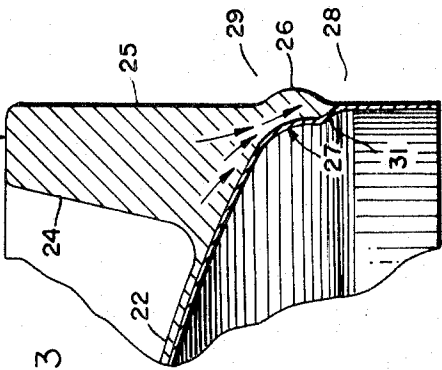
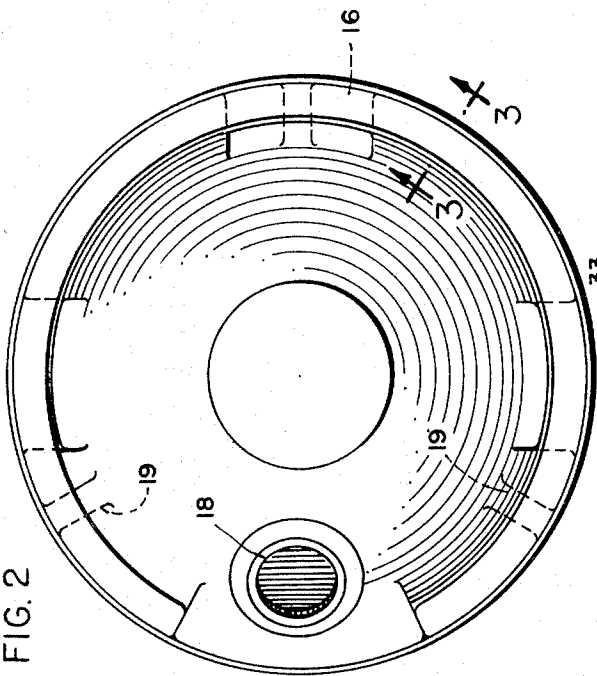
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1 Claim, 3 Drawing Figures





ACID CARBOY

BACKGROUND AND SUMMARY OF THE INVENTION

The instant invention has to do with carboys of substantial size — of the order of 7 gallons or more. Conventional sizes are 8½, and 15 gallons, and it will be appreciated that a 15-gallon tank when filled will weigh upwards of 160 pounds. The handling of such carboys without damage, so as to make them readily reusable, has constituted a problem in the art.

Attempts in smaller liquid containers have been made utilizing elastomeric skirts, as exemplified by U. S. Pat. No. 3,390,807. Certain drawbacks inhere in prior art constructions which are avoided in the instant invention.

According to the instant invention, skirts are provided of elastomeric material at each end of the tank, with the skirts each having an integral portion immediately adjacent the container end which projects radially outward from the head at least about ¼ of an inch, with the skirt itself being solid whereby the aforesaid portion serves as a unique shock-receiving reservoir. The skirt configuration further not only serves as a bumper to keep tanks separate one from another, but constitutes an advantageous bearing surface on which to roll the carboy — it being appreciated that one man could lift such a filled carboy only with extreme difficulty.

DETAIL DESCRIPTION

The invention is described in the accompanying drawing, in which:

FIG. 1 is a side elevational view of a carboy embodying teachings of this invention;

FIG. 2 is a top plan view of the carboy of FIG. 1; and

FIG. 3 is an enlarged fragmentary sectional view such as would be seen along the sight line 3—3 applied to FIG. 2.

In the illustration given, and with reference to FIG. 1, the numeral 10 designates generally a carboy constructed according to the instant invention. The carboy 10 is seen to include a generally cylindrical shell 11 closed at its upper end with a head or cover 12, and, at its lower end, with a bottom 13. Although the ends of the carboy 10 are different, they are essentially the same insofar as the elastomeric skirts generally designated 14 and 15 are concerned.

The upper skirt 14 is equipped with a plurality of hand holes, as at 16, and an interruption 17 to accommodate pouring of the liquid contents out of a capped opening 18.

The lower skirt 15 is discontinuous at a plurality of points 19 to permit flexure.

For example, I provide three openings or slots 19 each ¾ inch wide spaced equally 120° about the periphery of the bottom skirt 15. In somewhat similar fashion I provide three hand holes 16, each four inches wide having a height of about one inch and located about 7/8 inch below the upper extremity of the skirt 16. These dimensions can apply over a range of sizes, viz., for both 8½, and 15 gallon nominal sizes, with the exception that in the case of the larger size I provide the hand openings about 1½ inches below the top periphery of the skirt 14.

In the fabrication of the inventive carboy, the shell 11 and the ends 12 and 13 are fabricated of stainless steel such as type 304, or if intended for highly corrosive acids, of type 316. The ends have the skirts integrally attached thereto, as by molding, prior to the assembly into the configuration seen in FIG. 1. For that purpose, the ends 12 and 13 are welded to the ends of the shell 11 along the lines of union 20 and 21 respectively. It will be appreciated that the elastomeric material constituting the skirts 14 or 15, as the case may be, have thin web portions as at 22 and 23 respectively, overlying the convex or outwardly dished ends 12 and 13.

Referring now to FIG. 3, it will be seen that the skirt 14 (which is typical also of the major portion of the periphery of skirt 15) is of solid — as contrasted to hollow — construction. The thickness of the skirts 14 or 15 is of the order of one inch at their outer extremities, with the interior wall 24 being angled downwardly and radially inwardly at an angle of about 10° to the vertical. The outer wall of the skirt 14 is generally vertical and flush with the outer wall of the shell 11.

The skirts 14 and 15 are each characterized by having an integral portion 26 (in the case of the skirt 14) which is immediately adjacent the end cover or head 12 in the case of the upper end of the carboy 10 which projects radially outwardly from the head at least about ¼ inch. In the illustration given, this takes the form of a gradually curved rib developed by radii extending from the points 27, 28, and 29. For example, with respect to the 8½ gallon carboy, these radii are 5/16 inch, while in the 15 gallon size these radii are ¾.

An identical arrangement of a projecting integral portion exists relative to the lower skirt 15 as at 30 (see FIG. 1).

It will be seen that the integral portion 26 or 30, as the case may be, is provided a suitable distance spaced from the line of union 20 or 21, as the case may be. This insures that the welding operation to complete the carboy does not damage the elastomeric material of which the skirts 14 and 15 are constructed. Also, it will be noted that the ends 12 and 13 are dished or equipped with dips as at 31 and 32 respectively, which develop a substantial reservoir of elastomeric material at the very base of the skirt so as to absorb compressive shocks — as would be applied in a direction designated by the arrow 33 (see FIG. 3). Also, for the operation where the carboy is rolled along a surface, the carboy rests on the projections or ribs 26 and 30, and these are backed up, in effect, by the ends 12 and 13 so as to minimize any disadvantageous deformation.

I Claim:

1. A carboy comprising a generally cylindrical shell having generally outwardly convex integral end closures, a substantially perimetric solid elastomeric skirt attached to each end closure, said skirt having an integral circumferentially extending rib portion immediately adjacent its associated end closure which projects radially outward from said end closure at least one-eighth inch, said end closure being equipped with a circumferential inward extending recess aligned with said projection to provide a substantial amount of elastomeric material in said rib portion for absorbing compressive shocks.

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