

[54] **BOTTLE WITH AN INVERTED PORTION SUPPORT AND SEALING RING**

[76] Inventor: **Hall and Myers**, 613 Richard Rd., Wayne, Pa. 19087

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[51] Int. Cl. **B67d 5/64**

[58] Field of Search..... 222/181, 173, 185;
141/360, 319; 215/16, 31; 220/72

[56] **References Cited**

UNITED STATES PATENTS

1,184,878	5/1916	Rosenstock	222/181 X
1,362,831	12/1920	Altenberg	141/360
3,195,752	7/1965	Cox	215/1 C
3,547,295	12/1970	Williams	215/001 C

FOREIGN PATENTS OR APPLICATIONS

856,958	12/1960	Great Britain	215/1 C
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Primary Examiner—Stanley H. Tollberg

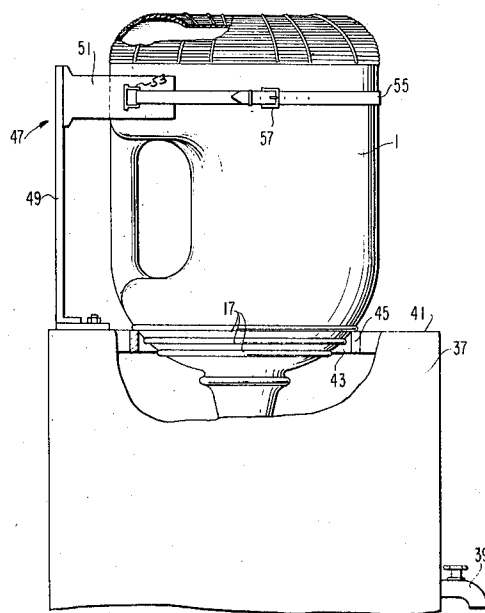
Assistant Examiner—Norman L. Stack, Jr.

Attorney, Agent, or Firm—William D. Hall

[57] **ABSTRACT**

Provided is a plastic bottle for dispensing water to a water cooler. Such water coolers generally include an upper surface having therein an orifice whose inner surface is bounded by a sealing ring. To overcome the problem of contamination often caused by impurities running down the sides of the bottle, past the sealing ring, and into the liquid dispensing area within the cooler, the bottle is provided with at least one annular ridge extending around the entire periphery of the taper section of the bottle, this ridge being an integral part of the outer wall of the taper section and being of a dimension sufficient such that when the bottle is located for dispensing of water by inserting its neck section through the orifice of the cooler, the annular ridge rests upon and overlaps the sealing ring thereby to prevent impurities from entering the apparatus through the orifice.

8 Claims, 2 Drawing Figures



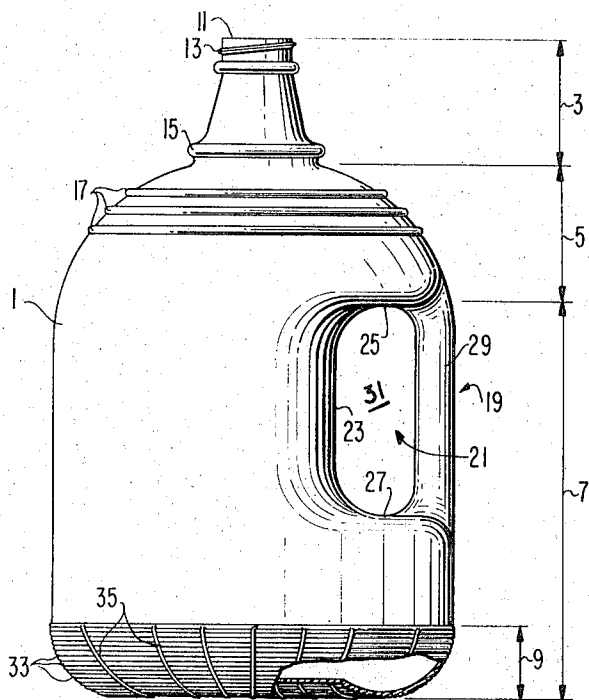


FIG. 1

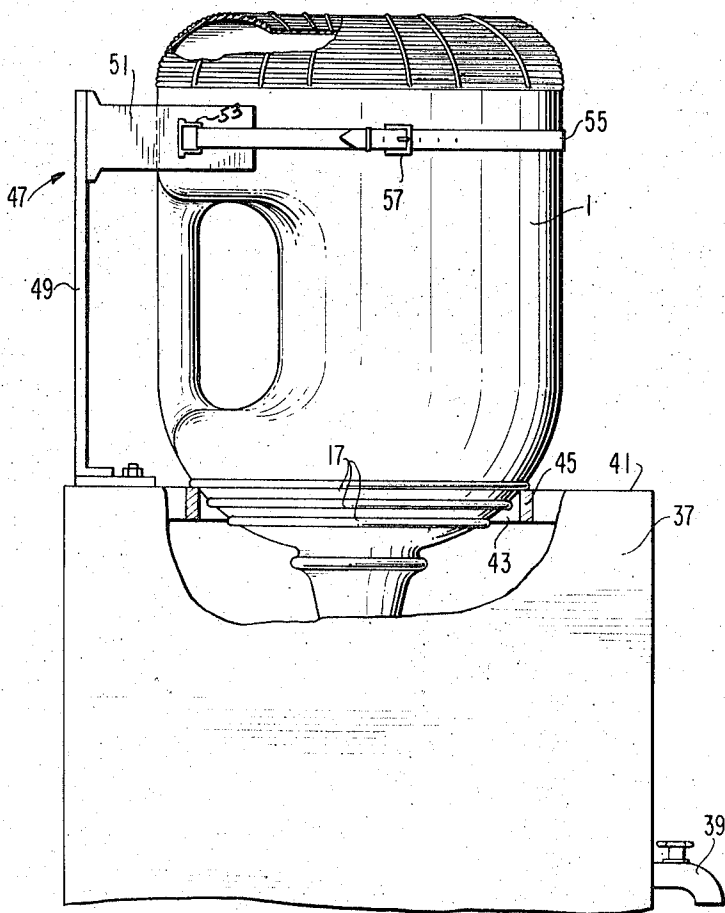


FIG 2

BOTTLE WITH AN INVERTED PORTION SUPPORT AND SEALING RING

The application relates to bottles capable of dispensing a liquid therefrom. More particularly, this invention relates to a unique bottle for providing a liquid to a liquid dispensing apparatus, and which is so designed as to eliminate many of the contamination problems now experienced by such apparatus.

Liquid dispensing apparatus, such as water coolers, have long been known. Such dispensing apparatus usually includes a container arrangement from which there extends a spout portion for dispensing a liquid upon demand (such as by way of button-valve, or the like), and an upper section having therein an orifice whose inner surface is bounded by a sealing ring. This orifice is usually of a predetermined size so that a liquid dispensing bottle, such as a typical water bottle, may be inverted, neck first, into the orifice for dispensing the liquid therefrom to the container arrangement. Such apparatus is usually also provided with a bottle retaining mechanism which clamps the bottle firmly near its base so as to prevent its dislodgement during use.

In order to provide a secure seating arrangement, and to prevent environmental contamination of the liquid while in the container arrangement, the orifice of the apparatus is usually provided with an annular sealing ring. Such a ring is usually made of a resilient material such as rubber, plastic, or the like so as to be capable of substantially conforming to the peripheral walls of the liquid dispensing bottle when it is invertedly secured for dispensing therein. It has long been felt that such a sealing ring, by substantially conforming to the peripheral walls of the bottle inverted therein, would be sufficient to provide a good seal between the bottle and the dispensing apparatus so as to prevent any impurities from flowing through the orifice and into the liquid being dispensed from the bottle.

While such sealing rings have proved somewhat effective when the dispensing apparatus is presented in a relatively level, quiescent environment, they have been found to be relatively ineffective in those instances where the apparatus and/or bottle are subjected to jarring, vibrations, or other dynamic forces during use. This is particularly true in those instances where the bottle is prone to experience condensation on its sides, which condensation then runs down the sides of the bottle, working its way past the sealing ring, because of jarring etc. and into the apparatus.

In recent years it has become either prevalent, or a requirement, to provide water coolers on various transit equipment, such as locomotives and cabooses in railroad trains, for the personnel associated with the operation of such devices to have ready access to drinkable water. In addition, it is either desirable, or a requirement, that bottled water associated with these coolers not be allowed to stand for more than approximately one month in their containers so as to avoid any possibility of contamination, algae growth and the like.

Such desirabilities and/or requirements have obviously created several difficult problems. For example, because of the amount of jarring, shaking and other vibrations which occur during the movement of a railroad train, the water being dispensed into the apparatus often is subjected to an inordinate amount of impurities particularly from condensed moisture running down

the sides of the water bottle, past the now inadequate sealing ring, and into the water to be consumed. In addition, because of this jarring and vibration, water-bottles made of glass have often proved to be unsafe, and unduly heavy. Still further, because of the expense of such glass bottles, and other known problems associated with glass, particularly with respect to the thirty day storage limitations described above, there has been a need to develop an inexpensive, easily handled bottle useful in place of these glass bottles. In order to solve this later problem, the industry has characteristically turned to blowmolded plastic bottles and such bottles have been on the market for a number of years.

Unfortunately, these plastic bottles are generally lighter in weight than glass bottles and thus are even more susceptible to vibration, etc. — the result, of course, being an increase in contamination. In addition, these prior art plastic bottles usually have had a handle or gripping means integrally formed within their walls, in order to facilitate handling of what might otherwise be a slippery, clumsy container. While such handles are usually an advantage over the clumsier glass bottles, they have often interfered with the relatively standardized types of clamping means provided on the water coolers or other dispensing apparatus for tightly securing the bottle into place during operation.

It is evident from the above that there exists a need in the art for a bottle which obtains the benefits of the prior art bottles, but which overcomes the many problems associated therewith. It is a purpose of this invention to fulfill this need in the art as well as other needs which will become more apparent to the skilled artisan once given the following detailed disclosure.

This invention fulfills the above-described and other needs in the art by generally providing a bottle adapted to provide liquid for a liquid dispensing apparatus, the liquid dispensing apparatus comprising an upper surface having therein an orifice whose inner surface is bounded by a sealing ring, the bottle comprising a neck section, a taper section and a body section, wherein the body section is of a substantially larger cross-section than said neck section and the taper section joins the neck section to the body section by being located therebetween, the taper section being provided with at least one annular ridge extending around the entire periphery of said taper section, said ridge being an integral part of the outer wall of said taper section and being of a dimension sufficient such that when said bottle is located for dispensing a liquid by insertion of the neck section through the orifice of the dispensing apparatus, the said annular ridge rests upon and overlaps the sealing ring thereby to prevent impurities from entering the apparatus through the orifice.

In particularly preferred embodiments, the bottle is one which will retain water and the dispensing apparatus is a water cooler. In such embodiments, it is often preferred to employ at least two annular ridges extending around the entire periphery of the taper section and spaced longitudinally therealong one from the other, each ridge being of a different dimension sufficient to rest upon and overlap a sealing ring of a different size one from the other. This makes the bottle adaptable for different types of water coolers or other liquid dispensing apparatus.

In still more preferred embodiments, the bottle is a plastic blowmolded bottle and the ridges are formed in

situ in the wall of the taper section during the formation of the bottle. The bottle is also preferably provided in its neck section with a dispensing spout portion having cap retaining means located on its outer walls and an annular re-enforcing ridge extending about the entire periphery of said neck section and being located intermediate said taper section and said spout section. In still further embodiments, the problem with respect to the securing means as described above is overcome by so redesigning the handle or gripping means of the bottle so that it will not interfere with the securing means of the cooler or liquid dispensing apparatus.

Exemplary of the prior art discussed hereinabove, and by way of background for the summary of the subject invention hereinabove given, attention is directed to:

U.S. Pat. Nos.: 1,142,210 2,054,881 1,171,550
3,053,419 1,881,929 3,162,330 2,026,171
3,195,752

U.S. Design Pat. Nos.: 146,128 194,285 189,996
209,929

This invention will now be described with respect to certain embodiments thereof in accompaniment with the attached illustrations wherein:

IN THE DRAWINGS

FIG. 1 is a side plan, partially sectionalized view, of one embodiment of this invention; and

FIG. 2 is a side plan, partially sectionalized view of the embodiment of FIG. 1, invertedly presented for liquid dispensing purposes in a typical liquid dispensing apparatus.

Referring to FIG. 1, there is illustrated a unique bottle embodying the concepts of this invention. This bottle 1 comprises a neck section 3, a taper section 5, and a body section 7, which body section 7 has located therewithin a base portion 9.

Neck section 3 is comprised of a conventional spout portion or means 11 preferably having located thereon externally disposed screwthread 13 for retaining a cap when the bottle is not in use. Positioned between the juncture of sections 3 and 5 there is located a reinforcing rib or ridge 15 which is desirable to employ in those instances where it is important to provide an extremely strong neck portion, such as where the neck portion is subject to oscillations, vibrations or the like either during storage or use.

Taper section 5 generally comprises a transitional section between neck section 3 of relatively small cross-sectional diameter and body section 7 of relatively large cross-sectional diameter. As disclosed hereinabove, this section 5 includes annular ridges 17 whose function will be more fully described hereinafter. Annular ridges 17, for purposes of preventing contamination, should extend substantially about the full periphery of the walls of section 5. In other words, in order to provide a maximum of protection against contamination, ridges 17 should constitute an annular ring about the total periphery of the walls of section 5.

Body section 7 being of a substantially larger cross-sectional dimension than neck section 3, is the section primarily charged with holding the large bulk of the liquid presented in bottle 1, during storage and dispensation. As with the other sections, body section 7 is of a generally circular cross-sectional shape but has located therein, a handle or gripping means 19. As can be seen, gripping or handle means 19 are preferably within the

peripheral plane of the outer peripheral walls of body section 7.

Such gripping means are generally comprised of an insert 21, which is defined by an inner longitudinally extending wall 23, upper wall 25 and lower wall 17. Walls 25 and 27 are substantially perpendicular to longitudinal wall 23, and connects wall 23 with the peripheral plane walls of body section 7. A handle or gripping column 29 extends between walls 27 and 25, and is usually of a substantially circular but relatively narrow cross-sectional dimension. This provides, in combination with insert 21, a gripping conduit or orifice 31 through which a hand can be inserted for ready gripping of the bottle.

In a further feature of this invention, as will be more fully explained hereinafter, gripping means 19 is so designed that ready gripping through orifice 31 is easily achieved, but on the other hand, there is sufficient space between lower wall 27 and base portion 9 so that conventional securing means prevalently employed on most liquid dispensing apparatus in which the bottle is to be employed, will not be interfered with when in operation.

Body section 7 is also comprised of a base section 9. Base section 9 is primarily that section upon which the bottle will rest during storage and prior to use. This section is therefore provided with cross-sectional reinforcing ridges 33 formed as annular rings about the entire peripheral wall of base section 9, and anti-skid ridges 35 which extend longitudinally about the base section. Ridges 33 add re-enforcing strength to the base while ridges 35 inhibit skidding and other movement of the bottle during use and transit and add additional reinforcing strength to the bottle. Such re-enforcing ridges 33 and anti-skid ridges 35 and the design illustrated therefor, do not per se constitute patentable invention in that they have been employed before on similar bottles used in commerce prior to the subject invention.

The bottles of this invention can be made from any conventional material including natural and synthetic materials such as glass, rubber, plastic and the like. In preferred embodiments, because of the ease of manufacture, inexpensiveness of the ultimate bottle and the like, these bottles are preferably of a conventional plastic useful in blowmolding operations such as polyvinyl chloride, polyethylene, and polypropylene.

As best exemplified by the sectional portion of base 9 in FIG. 1, ridges 33 and 35 are preferably formed in situ during the blowmolding operation, as are ridges 15 and 17 and screwthread 13. In addition, gripping means 19 is also formed in situ during the blowmolding operation in accordance with conventional and known techniques in the art.

Referring now to FIG. 2, there is illustrated the use of bottle 1 in a conventional liquid dispensing apparatus such as a water cooler employed for personnel engaged in operating freight cars and the like. In this respect, there is illustrated a typical water cooler 37 having a water dispensing spout 39 and an upper surface 41. Within this upper surface 41 is located an orifice 43 bounded by a circumferential sealing ring 45, usually of a resilient material such as rubber.

Sealing ring 45 is conventionally of many different configurations some of which reside solely within orifice 43, others of which lap over and extend onto upper surface 41. All of such sealing rings are contemplated

as an environment for this invention, since they all provide a sealing surface for bottle 1, which is inadequate, when jarring, vibration or other dynamic forces occur, to adequately seal the system against contamination as above-described.

In the embodiment as illustrated, bottle 1 is invertedly located within orifice 43. In order to secure bottle 1 against dislodgement, there is provided securing means 47. Such means 47 may assume many different types and forms. Generally speaking, however, and as generically illustrated in the drawings, these securing means comprise or include at least one (and often two or three) upstanding rigid post or stand 49 secured to upper surface 41 of water cooler 37 by any conventional technique. Attached to stand 49 is a securing bracket 51 which bracket as illustrated by the dotted line, is usually of a broad U-shape or convex configuration to generally conform with the outer peripheral dimensions of bottle 1. Included on bracket 51 are securing clamps 53 (one on each side of the U) for retaining a strap 55 which wraps about the peripheral walls of bottle 1 and, through a conventional clamping means 57, tightly secures bottle 1 in place.

Referring to the area of orifice 43, it can be seen that with this particular water cooler 37, the third of ridges 17 is employed as the sealing means to protect against contamination. As can be further seen, third ridge 17 is so designed as to overlap sealing ring 45 thus to present a "change of direction" to any impurity running or falling down the walls of bottle 1 and thus to better prevent impurities from entering orifice 43 upon movement of bottle 1, such as would occur if the peripheral walls 1 were not provided with ridges 17 (i.e., if taper section 5 were smooth). By providing ridges 17, there is provided a unique mechanism within the context of now existing conventional water cooler or other liquid dispensing systems, to efficiently and yet inexpensively at least inhibit the entrance of contamination into the system.

Once given the above disclosure, many other features, modifications and improvements will become apparent to the skilled artisan. Such other modifications, features and improvements are, therefore, considered to be a part of this invention, the scope of which is to be determined by the following claims:

I claim:

1. A bottle adapted to provide liquid for a liquid dispensing apparatus, said liquid dispensing apparatus comprising an upper surface having therein an orifice whose inner surface is bounded by a sealing ring which forms a primary vertical support for the bottle,

said bottle comprising a neck section, a taper section, and a body section, wherein the body section is of a substantially larger cross-section than said neck section, said taper section having two ends, one end joining to said neck section and the other end joining to said body section thereby to locate said taper section between the neck and body sections,

said taper section being provided with at least one an-

nular ridge located a substantial distance from the end of said taper section which joins to the neck section, said ridge extending around the entire periphery of said taper section, said ridge being an integral part of the outer wall of said taper section and being of a dimension sufficient such that when said bottle is inverted for dispensing a liquid by insertion of the neck section through said orifice of said dispensing apparatus, said annular ridge bears upon said sealing ring and said sealing ring supports the weight of the bottle, thereby forming a seal to prevent impurities from entering said apparatus through said orifice.

2. A bottle according to claim 1 wherein there are provided at least two annular ridges extending around the entire periphery of said taper section and spaced longitudinally therealong one from the other, each ridge being of a different dimension sufficient to bear upon and overlap with a sealing ring of a different size one from the other.

3. A bottle according to claim 2 wherein there are provided three of said annular ridges.

4. A bottle according to claim 1 wherein said bottle is a plastic blow-molded bottle and said ridges are formed in situ in said wall of said taper section during the formation of the bottle.

5. A bottle according to claim 4 wherein said neck portion comprises a dispensing spout portion having cap-retaining means located on its outer walls and an annular re-enforcing ridge extending about the entire periphery of said neck section and being located intermediate said taper section and said spout portion.

6. A bottle according to claim 1 wherein said body portion includes handle means disposed intermediate said taper section and the base of said body portion and integrally and internally of the peripheral plane of the outer peripheral walls of said body section.

7. A bottle according to claim 6 wherein said handle means comprises an insert extending through and beneath the peripheral plane of the outer peripheral walls of said body section said insert being defined by an innermost longitudinally extending wall connected to the peripheral outer walls by upper and lower walls extending substantially perpendicular thereto, said handle means further comprising a gripping means not in contact with said innermost wall and extending between said upper and lower walls thereby defining between said gripping means and said innermost wall an orifice of sufficient size through which a hand may be inserted for gripping said gripping means.

8. A bottle according to claim 6 wherein said liquid dispensing apparatus further includes retaining means for securing said bottle against displacement during dispensing, said retaining means contacting said bottle at about the lower end of said body section, said handle means being so located and of insufficient size so as not to interfere with the securing action of said retaining means.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,845,884 Dated November 5, 1974

Inventor(s) John R. Sinding

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the Cover Sheet, under "United States Patent" and in item [76] cancel "Hall & Myers" and substitute therefor -- John R. Sinding -- and in Column 2 of the Cover sheet, entitled "Attorney, Agent or Firm", "William D. Hall" should be canceled and -- Hall and Myers -- substituted therefor.

Signed and sealed this 1st day of April 1975.

(SEAL)
Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents
and Trademarks