June 23, 1925. 1,542,944

U. KAWASAKI

BOTTLE

Filed Aug. 17, 1921 2 Sheets-Sheet 1

FIG 1

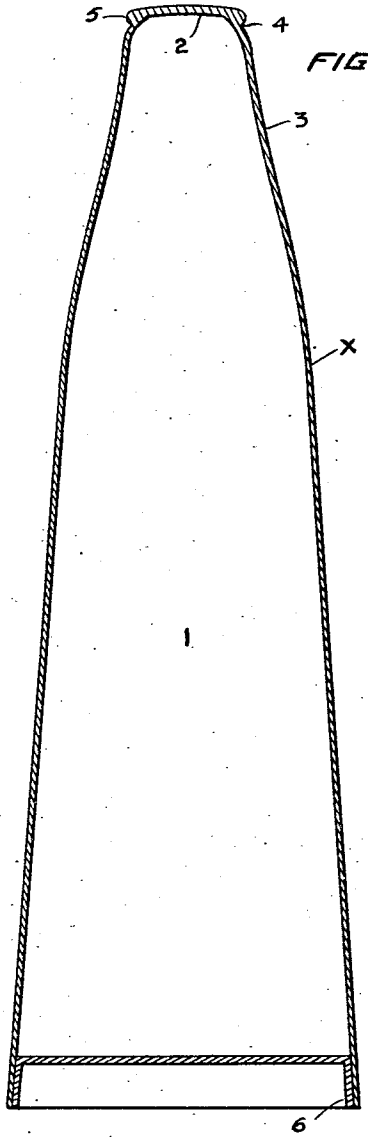


FIG. 3

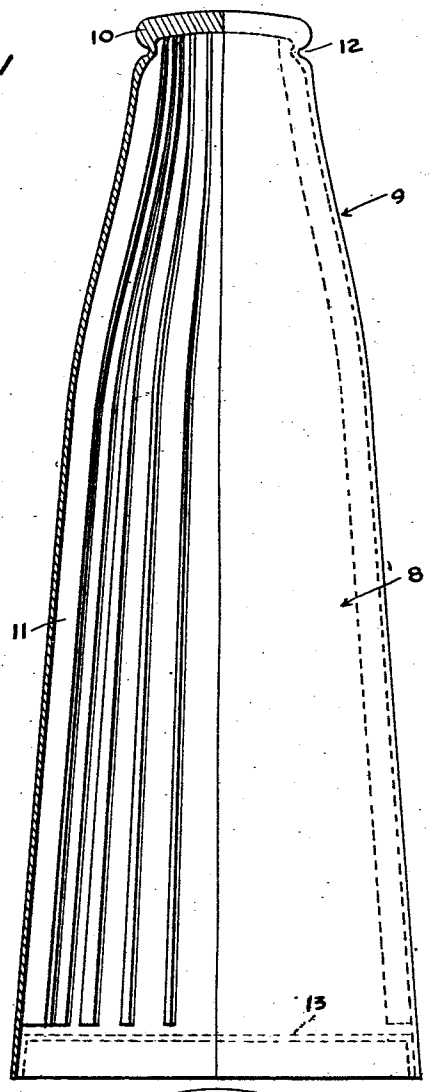


FIG 2

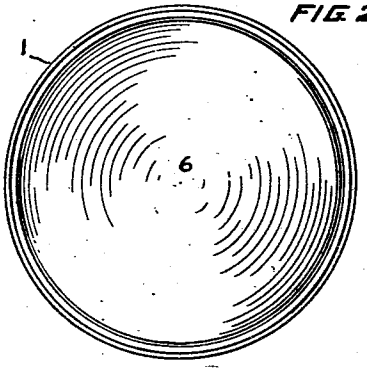
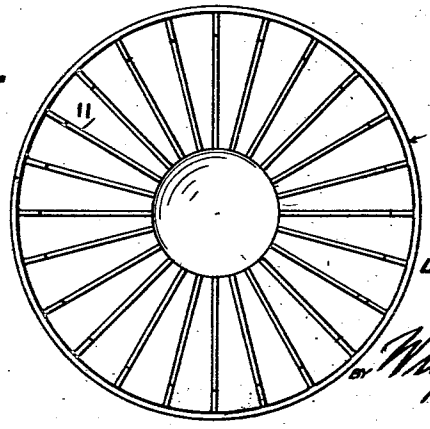


FIG. 4



INVENTOR
U. KAWASAKI

BY Wright & Clum

ATTYS.

June 23, 1925. 1,542,944

U. KAWASAKI

BOTTLE

Filed Aug. 17, 1921 2 Sheets-Sheet 2

FIG. 5

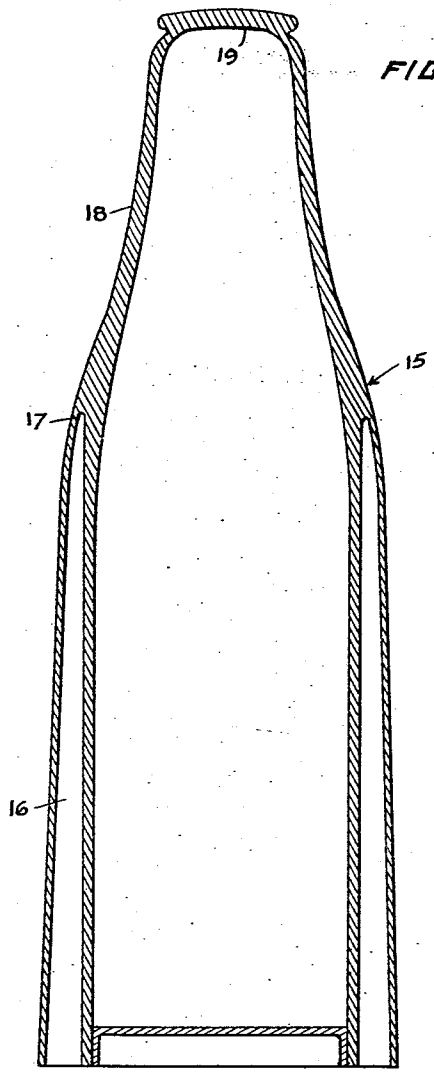


FIG. 7

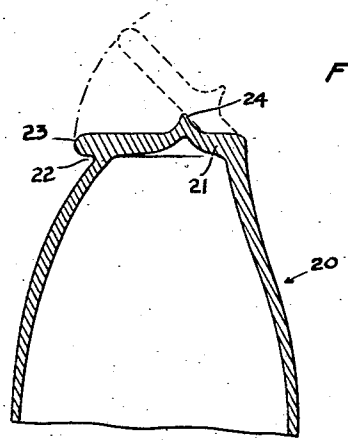


FIG. 8

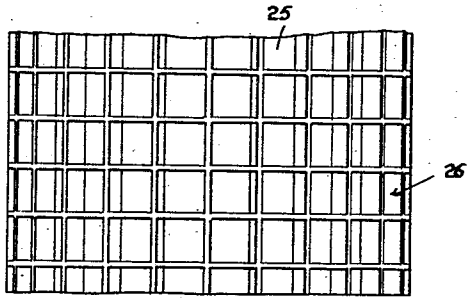


FIG. 9

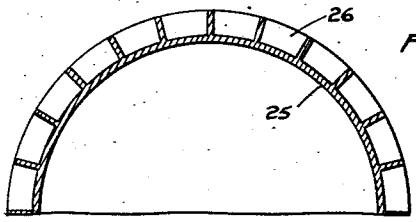


FIG. 6

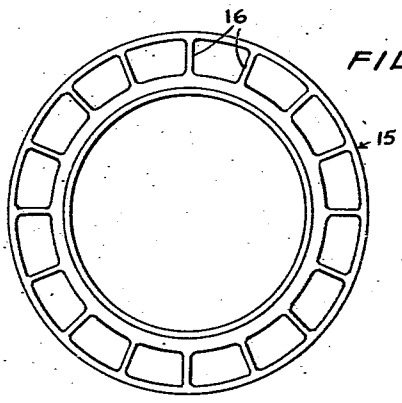
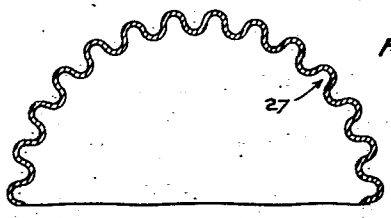


FIG. 10



INVENTOR
U. KAWASAKI

BY Wright & Thurman

ATTYS.

Patented June 23, 1925. 1,542,944

UNITED STATES PATENT OFFICE.

UTAKICHI KAWASAKI, OF SAN FRANCISCO, CALIFORNIA.

BOTTLE.

Application filed August 17, 1921. Serial No. 492,994.

To all whom it may concern:

Be it known that I, UTAKICHI KAWASAKI, a subject of the Emperor of Japan, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Bottles, of which the following is a specification.

The present invention relates to improvements in bottles or containers, particularly those formed of paper pulp or similar material and which are especially adapted for containing milk and beverages.

An object of the invention is to provide a bottle of the character described which will be cheaper than the ordinary glass bottle, less subject to breakage and capable of being stored or packed for shipment in large numbers, in a more compact form, one bottle being nested within the other.

Another object is to provide a bottle of the character described which will greatly facilitate the filling and sealing thereof, owing to its peculiar formation. The bottle being formed or molded with the bottom or lower end open and the top or upper end closed and being tapered from the open end to the closed end, whereupon the filling of the bottle is effected thru the larger open end and after filling, said end is permanently sealed, the dispensing of the contents of the bottle being provided for by cutting or otherwise forming an opening in the smaller closed end. This construction facilitates the filling operation, in that less steps are required and fewer parts than are usually necessary to provide for the filling and sealing the bottles.

A further object of the invention is to provide a bottle of the character described wherein the normally closed discharge end is of a special construction to facilitate opening thereof to permit of the pouring out of the contents of the bottle.

The invention possesses other advantages and features, some of which, with the foregoing will be set forth at length in the following description where I shall outline in full that form of the invention which I have selected for illustration in the drawings accompanying and forming a part of the present specification. In said drawings I have shown one form of the construction of my invention but it is to be understood that I do not limit myself to such form since the invention as expressed in the claim may be embodied in a plurality of forms.

Referring to the drawings:

Fig. 1 is a vertical sectional view of a bottle constructed in accordance with the present invention.

Fig. 2 is a bottom plan view of the bottle.

Fig. 3 is a vertical sectional view of a modified form of bottle.

Fig. 4 is a bottom plan view of the modified form shown in Fig. 3.

Fig. 5 is a vertical sectional view of another modified form of the invention.

Fig. 6 is a bottom plan view of the form shown in Fig. 5.

Fig. 7 is a fragmentary sectional view of another modified form of the invention showing a special closing cap.

Fig. 8 is a fragmentary side elevation of another modified form of the invention.

Fig. 9 is a fragmentary horizontal sectional view of the bottle shown in Fig. 8.

Fig. 10 is a fragmentary cross sectional view of another modification.

Referring to Figs. 1 and 2, the bottle shown therein comprises a body portion 1 formed of paper pulp or some other fibrous material, which has the quality of being light, waterproof and relatively inexpensive as compared to glass, and also less subject to breakage. The body portion is formed or molded so as to taper from one end to the other, the larger end being formed fully open, whereas the smaller end is closed by an integral wall or cap 2. Preferably the bottle has a constant taper up to a point near its closed end, as indicated at X, and from there on, tapers at a sharp angle, up to the cap or closed end 2, forming a neck portion 3. Where the neck portion is joined to the end wall or cap 2, a circumferential line of weakness 4 is formed, whereby the wall 2 may be lifted up or moved to permit of the pouring out of the contents of the bottle. This line of weakness may be formed as an annular indentation or groove, as shown, whereby an annular bead 5 will be provided, which bead may be grasped in the operation of tearing or cutting at the line of weakness. Thus, in this particular form of bottle, the structural arrangement is reversed, as compared to the ordinary bottle, since the larger end or bottom of the present bottle is formed open and the smaller or

neck end is formed closed. Bottles constructed in accordance with the present invention may be nested one within the other so that a plurality of such bottles may be compactly and effectively packed or stored in small compass. Furthermore, the filling of the bottles in accordance with the present invention, is made more efficacious since the bottles are turned with the larger ends uppermost in the filling thereof. While the bottle is thus inverted the sealing of the open end may be effected by forcing flanged closure member 6 into said end, as shown in Figs. 1 and 2. The flange of the cap is tapered corresponding to the taper of the bottle at the open end and therefore provides for a tight and leak-proof sealing of the bottle. Any suitable expedient may be employed for holding the closure in place, such as forcing and impinging the closure cap in place by pressure means or by using glue. The sealing or closure cap is permanently mounted in place and as the bottles may be made cheaply enough to permit of a single use thereof, after such use they may be thrown away. It will thus be seen that the bottles of this invention will serve as effective and highly sanitary dispensing containers, particularly suitable for milk or beverages.

When it is desired to pour the contents of the bottle therefrom, a cut or tear is made at the line of weakness and the closure wall 2 pulled or pried into position to form an opening or may be completely removed. If the cut or tear is made throughout only part of the circumference of the neck the remaining material joining the neck and wall, will serve as a hinge medium. The tearing or cutting of the material may be effected with the finger nail if the material is of a light nature, otherwise a knife or other suitable instrument may be employed for this purpose.

Referring to Figs. 3 and 4 wherein I have illustrated a modified form of the invention, the body portion 8 is formed with the same taper as the body portion of the previously described form of the invention and is open at its larger end and provided with a neck portion 9 closed with the integral and removable end cap or wall 10. The body portion 8 is molded or otherwise formed so as to provide a plurality of webs or reinforcing ribs 11 which extend for the entire length of the bottle, are formed integral therewith and spaced from one another. These ribs are on the inside of the bottle and the outer surface of the bottle remains smooth. This arrangement provides maximum strength. The reinforcing construction in no way impairs the appearance and smoothness of the outer surface of the bottle wall, which smoothness facilitates packing or storing and ease of handling the bottles. At the closed end 10 there may be provided a line of weakness as at 12, corresponding to the arrangement in the previously described form of the invention, whereupon the smaller end of this bottle may be torn or disrupted to permit of the pouring out of the contents. A flanged closure or sealing cap 13 is employed to permanently seal the larger or lower end of the bottle. As shown in the drawings the ribs or webs 11 terminate short of the open end of the bottle whereby the closure or sealing member may be inserted in place.

Referring to Figs. 5 and 6, wherein another modified form of the invention is shown, the body portion 15 is formed or molded so as to provide vertically extending spaced radial ribs or webs 16 from a point 17 where the neck 18 of the bottle and body proper thereof join one another, the neck portion being of solid form. This ribbing or webbing 16 provides a double wall effect and is similar to the other ribbed bottle, except that such webbing or ribbing extends only a part way of the length of the bottle. In all other respects the bottle will be the same as in the forms previously described, in that it will be formed or molded with the closed end 19 subject to being disrupted or torn to form an opening and will also have a flanged sealing cap permanently mounted in the larger or lower end.

Referring to Fig. 7, the form of bottle shown therein, comprises a body portion 20, substantially the same form as shown in Figs. 1 and 2, which body portion is molded or otherwise formed with a closed end by means of a wall 21. A line of weakness 22 is provided at the juncture of the wall 21 with the neck of the bottle whereby, upon tearing or cutting of the bottle at the line of weakness, the wall 21 may be completely removed or moved so as to open the bottle at this point. To facilitate the removal of the wall 21, where the wall is joined to the bottle, an outwardly projecting lip 23 is formed on the wall. To prevent contact of the fingers with the portion 23 adjacent or over which portion, the contents of the bottle will be poured, an upstanding nob or projection 24 is formed on the outer side of the wall 21 and is to be grasped or engaged by the fingers to effect the opening of the bottle after the cutting or tearing of the line of weakness.

In Figs. 8 and 9, I have shown another modified form of the bottle wherein the body portion 25 is of a honey-comb construction 26, upon its outer face, and will have a smooth inner face, the said honey-comb construction serving as a reinforcing medium and consisting of the usual integral horizontal and vertical ribs or webs.

In Fig. 10, I have shown another modified form in which the body portion will be

corrugated as at 27, the corrugations extending vertically from one end of the bottle to the other.

One of the principal features of this invention is exemplified in the peculiar construction employed, which construction makes it possible to easily mold the bottles. In the form shown in Figs. 5 and 6, wherein the double wall effect is provided, the ribbing or webbing extends only throughout the length of the portion of the bottle that has a constant taper and in view of this, the mold may be readily removed after the molding operation. This fact is true of the other forms of the bottle, since the special form of mold may be easily removed without affecting the molded article or bottle.

I claim:

A bottle comprising a body portion formed of pulp, paper or like fibrous material, which body portion is open at one end and formed with an integral closing wall at the other end, there being a line of weakness at the juncture of the closing wall and the body portion extending part way of the circumference of the body to provide for tearing, cutting or disrupting of the bottle at said line of weakness to form an opening, an upstanding finger piece on the outer side of the closing wall, and a sealing member adapted to be permanently mounted in the open end after filling of the bottle.

UTAKICHI KAWASAKI.