Aug. 30, 1932. C. J. FOTH ET AL 1,875,231

UNBREAKABLE AND SANITARY SEAMLESS RECEPTACLE

Filed March 2, 1931

Fig. 1.

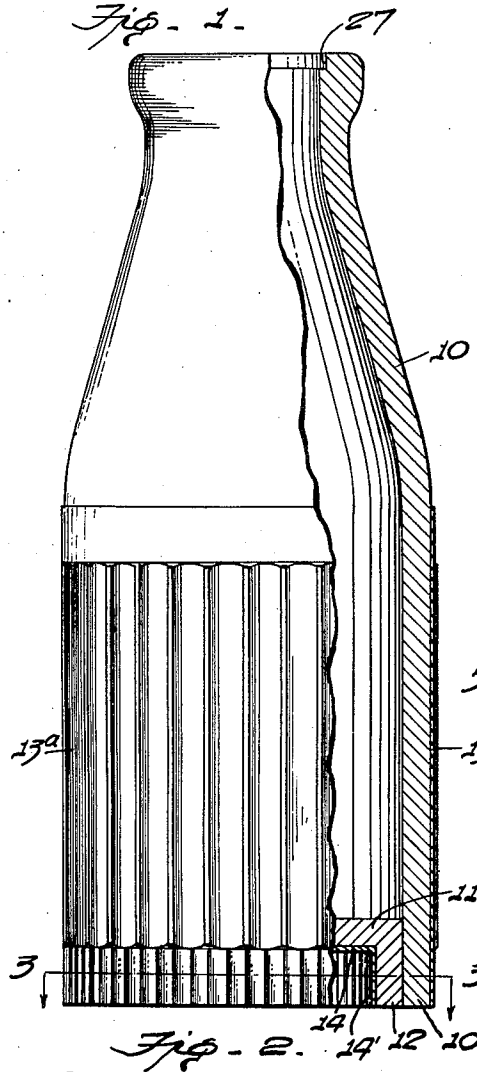


Fig. 2.

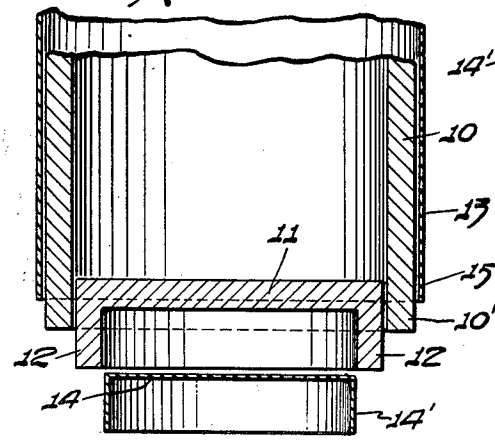


Fig. 3.

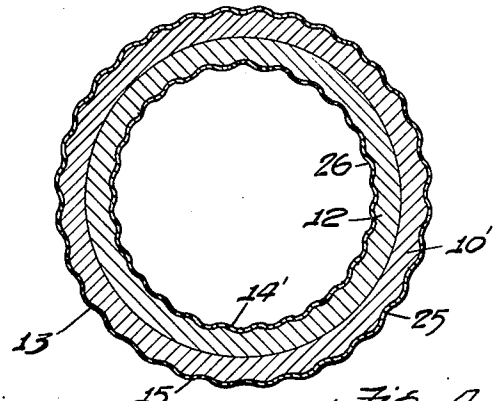


Fig. 4.

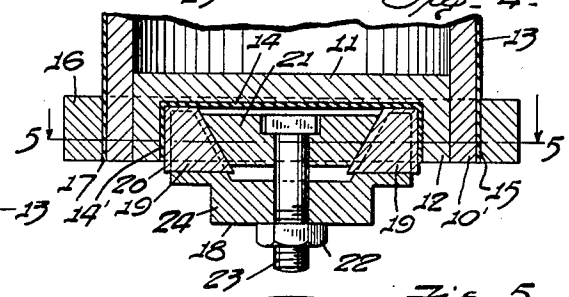
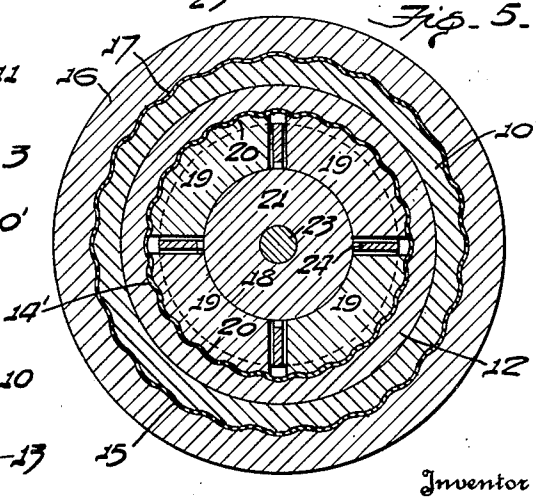


Fig. 5.



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UNITED STATES PATENT OFFICE

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UNBREAKABLE AND SANITARY SEAMLESS RECEPTACLE

Application filed March 2, 1931. Serial No. 519,543.

This invention relates to a substantially unbreakable and sanitary seamless receptacle particularly adapted to be manufactured inexpensively in the form of a milk bottle and to be discarded after a single use.

It is particularly aimed to provide such a bottle or receptacle composed of sections molded from wood pulp in combination with metallic elements holding such sections together under compression and in water tight relation at their junction, with one of the elements constituting an exterior reinforcing body and guard.

The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawing illustrating an operative embodiment and wherein:

Figure 1 is a view of a bottle constructed in accordance with the invention, being primarily in front elevation but partly broken away and in section.

Figure 2 is a partial central vertical sectional view through the lower portion of the bottle, suggesting the assembly of the different parts thereof;

Figure 3 is a cross sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a partial central vertical section suggesting the securing of the different parts together, and

Figure 5 is a horizontal sectional detail taken on the line 5—5 of Figure 4.

Referring specifically to the drawing wherein like reference characters designate like or corresponding parts throughout the different views, the improved bottle or receptacle has a suitably shaped container or body section 10 and a closure or bottom section 11. Said sections 10 and 11 are molded separately from clean paper or vegetable fiber pulp waterproofed by wax or otherwise and may be of any suitable thickness, for instance three-eighths of an inch. If desired, a suitable quantity of plaster of Paris may be incorporated into the wood pulp mass before molding to give the sections stability and consistency. Said closure section 11 has an annular depending flange 12 terminating flush with the lower edge of body 10. While the sections 10 and 11 are moist, they are disposed as shown in Figures 1 and 4. Previously or thereafter, as preferred, an outer sleeve or guard 13 of any desired height, having a guard or gripping surface 13*a*, is telescoped over the body 10 and a cap 14 is inserted into the hollow of the closure 11, which has a depending flange 14′ surrounded by the flange 12 thereof. Said guard 13 and cap 14 are of tin or other sheet metal.

Initially, said flanges 12 and 14′ and the lower portions of guard 13 and body 10 opposite it, designated respectively 15 and 10′, are truly cylindrical. In securing the parts together, as suggested in Figures 4 and 5, the cylindrical portion 15 is disposed within a forming ring 16, interiorly corrugated or roughened as at 17 and an expanding device 18 is inserted within the cap 14. The expander 18 is conventionally shown, having for example, dies 19 peripherally corrugated or roughened at 20, adapted to be spread by a downwardly movable wedge 21, actuated by the movement of a nut 22 on a bolt 23 loosely mounted in a support 24 for said dies 19.

The operation of the dies 19 in an outward and radial direction results in expanding the cylindrical flange 12, guard portion 15, flange 14′ and body portion 10′ and at the same time distorting or corrugating them as at 25 and 26 and greatly compressing portions 10′ and 12 to form a fluid-tight seamless joint between them, which is augmented by the adhesive action of the natural constituents of the pulp since the sections 10 and 11 are secured together in a wet condition immediately after they are molded and thus before drying. The guard 13 and the cap 14, respectively, support the moist body 10 and the moist bottom 11, and prevent them from being accidentally distorted while the flange 12 of the closure section 11, flange 14′ of the cap 14, the portion 10′ of the body 10, and the lower portion 15 of the guard 13 are being pressed together to form a fluid-tight seamless joint between the flange 12 and the body portion 13. After the completion of the receptacle by the formation of this joint, the guard 13 and the

cap 14 function as protectors for the body 10 and closure section 11, and hold the flange 12 and the lower end 10′ of the body under compression to maintain the fluid-tight seamless joint between them.

A ledge 27 is provided in the mouth of the bottle to accommodate an ordinary paper disk stopper or obviously the mouth may be closed in any desired way.

The bottle, it will be realized, may be very expeditiously and inexpensively made and is adapted for a single use before being discarded. It will withstand rougher handling than a glass bottle, and overcomes the well known objections thereto, such as production of glass fragments or chips, injury by cutting if a child should fall while carrying a bottle, and breaking while thawing in warm water.

The sleeve 13 forms a very effective reinforcement and guard for the bottle and may be of any height desired.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

We claim as our invention:

1. A receptacle comprising a body and a bottom initially separate and made of pulp, the bottom having a flange within the lower end of the body and cohesively united therewith, an outer metal ring surrounding the lower end of the body, and an expanded inner metal ring within said flange holding the flange and the lower end of the body under compression between itself and the outer ring, the inner ring having been expanded while the pulp was moist to effect the cohesive union of the flange with the body.

2. A receptacle comprising a body and a bottom initially separate and made of pulp, the bottom having a depending flange within the lower end of the body and cohesively united therewith by compression while the pulp was moist, a metal guard about the body, and a metal cap contacting with the lower side of the bottom and having a flange expanded within the flange of said bottom and holding the flange of the bottom and the lower end of the body under compression between itself and the guard, the flange of the cap having been expanded while the pulp was moist to cohesively unite the flange of the bottom and lower end of the body and the guard and cap supporting the body and bottom and protecting them from injury.

In testimony whereof we have hereunto set our hands.

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