July 31, 1923.

1,463,437

R. M. OLIVER

PAPER MILK BOTTLE

Filed Dec. 11, 1922

2 Sheets-Sheet 1

Fig. 3.

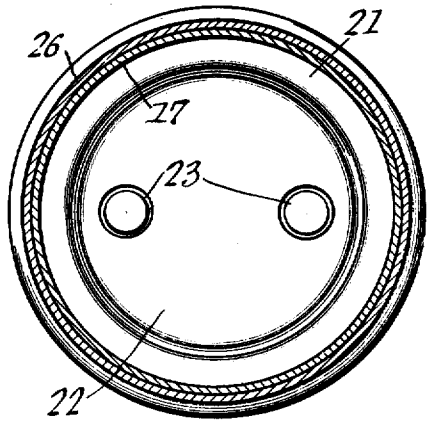


Fig. 1.

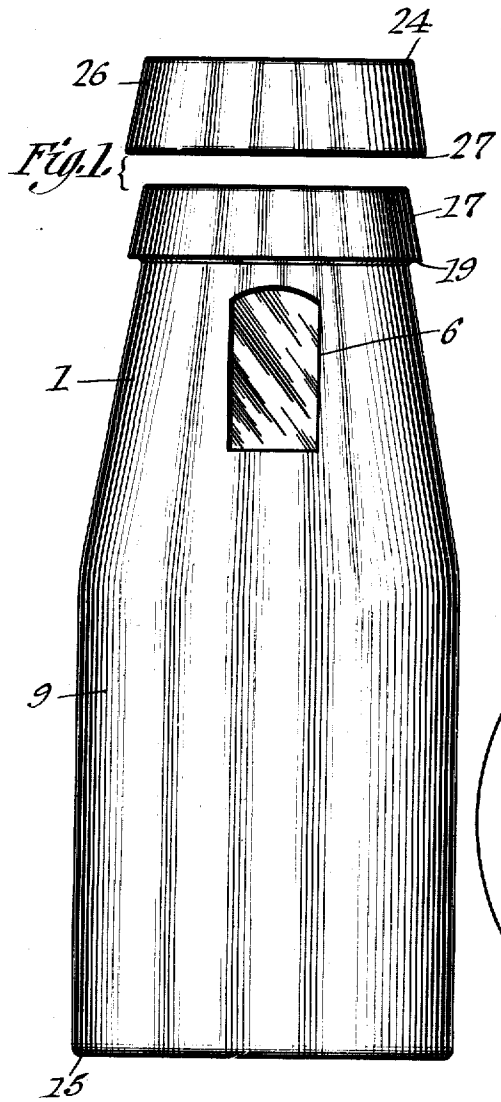
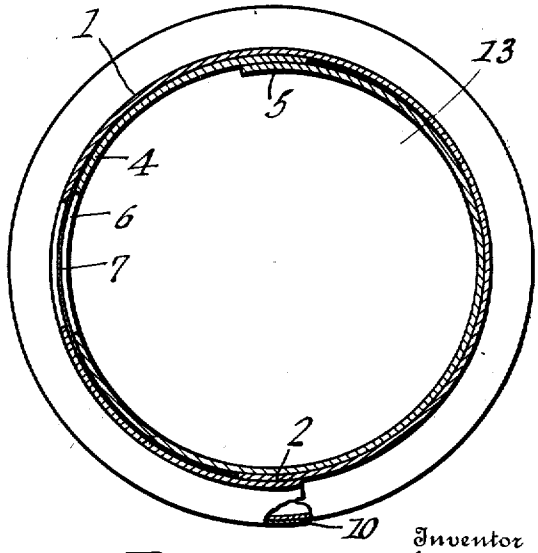


Fig. 4.



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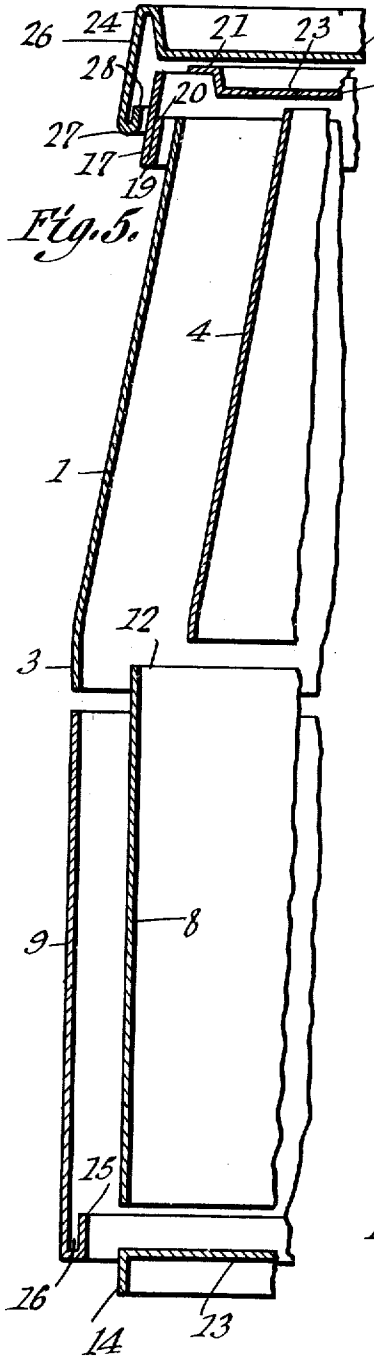


Fig. 5.

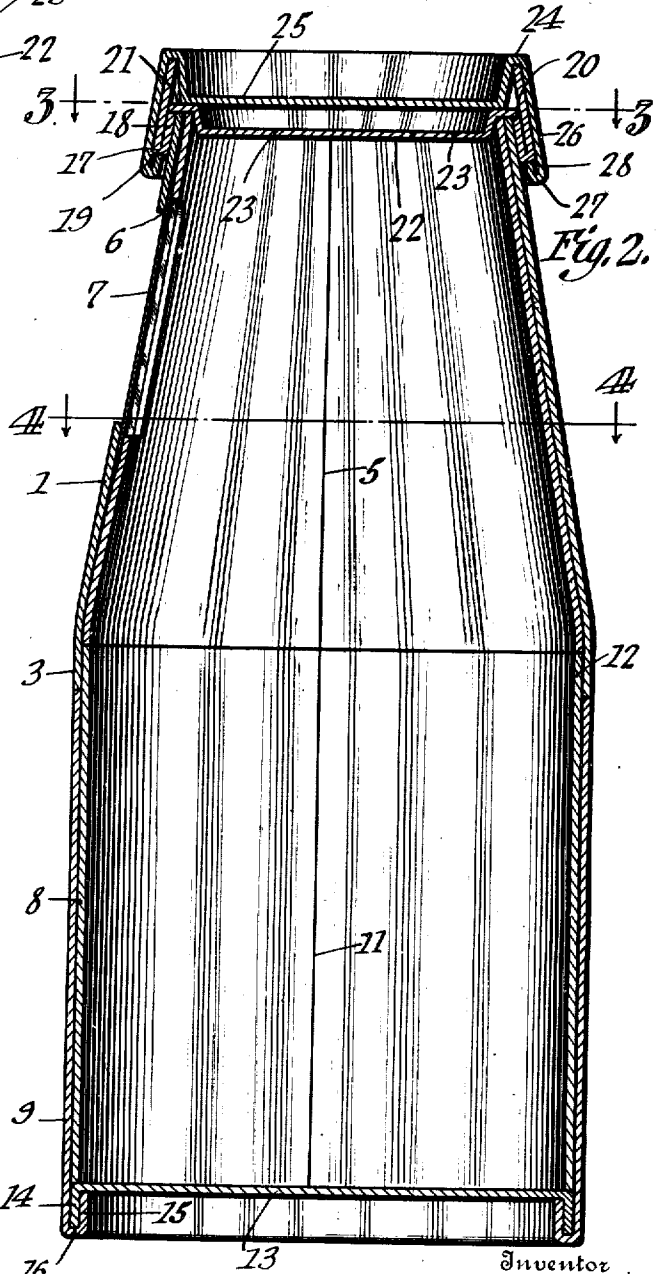


Fig. 2.

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Patented July 31, 1923. 1,463,437

UNITED STATES PATENT OFFICE.

RUTH M. OLIVER, OF NEW YORK, N. Y., ASSIGNOR TO MRS. LYDIA B. KOCH, OF NEW YORK, N. Y.

PAPER MILK BOTTLE.

Application filed December 11, 1922. Serial No. 606,133.

To all whom it may concern:

Be it known that I, RUTH M. OLIVER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Paper Milk Bottle, of which the following is a specification.

This invention relates to paper bottles designed primarily for use as milk bottles, one of its objects being to provide a device of this character that can be produced at low cost and can be sold at such a figure as to effect a saving to the merchant who, when using the ordinary glass bottles, is required to meet certain regulations involving sealing, sterilizing, pasteurizing, etc., that are avoided by the use of the present invention.

Another object is to provide a paper bottle having the appearance and proportions of a milk bottle whereby it can be used in lieu of a glass bottle at all stages of milk handling, it being possible to use the standard mechanisms for filling the bottle, to inspect the contents of the bottle without opening it, and so seal the bottle that the contents thereof cannot be removed without detection.

A further object is to construct a paper bottle with interior and exterior shoulders at the neck portion thereof for engagement by a stopper disk and a sealing cap respectively, whereby the opening of the bottle without mutilation is prevented.

A still further object is to provide a bottle made up of sections so assembled that the seams will constitute longitudinal and annular reinforcements.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims, it being understood that various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing any of the advantages of the invention as claimed.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings

Figure 1 is an elevation of the paper bottle constituting the present invention.

Figure 2 is an enlarged longitudinal section therethrough.

Figure 3 is a section on line 3—3, Figure 2.

Figure 4 is a section on line 4—4, Figure 2.

Figure 5 is a section through a portion of the bottle, the parts being shown separated.

Referring to the figures by characters of reference, 1 designates an outer thickness of paper of suitable grade shaped into frusto conical form with its longitudinal edges lapping, as shown at 2, to provide a thickened portion constituting a longitudinal reinforcement. The large end of this frusto conical portion is slightly contracted to provide a short cylindrical portion 3. Fitted tightly within the outer thickness 1 is an inner thickness of paper likewise frusto conical with its longitudinal edges lapping, this inner thickness being indicated at 4 and its lapping edges at 5. The lap 5 is preferably diametrically opposite the lap 2 and also constitutes a longitudinal reinforcement. The two thicknesses have their small ends flush while the cylindrical portion 3 projects beyond the end of the inner thickness 4. The portions 1 and 4 cooperate to form the upper tapered portion of the wall of the bottle and are provided, near their small ends with openings cooperating to form a window or sight opening 6. A sheet of suitable transparent material, indicated at 7, extends across this window and has its marginal portions extended between the thicknesses 1 and 4 and tightly gripped and held thereby. A suitable adhesive can be used for holding the sheet 7 in place.

The lower portion of the bottle wall is made up of an inner thickness 8 and an outer thickness 9, both formed of a suitable grade of paper and both cylindrical. Each of these thicknesses has its longitudinal edge portions lapping, as indicated at 10 and 11 respectively, thereby to provide longitudinal reinforcements. These reinforcements are diametrically opposed and are adapted to aline with the lapping portions of the tapered part of the bottle when the various parts are assembled.

The thickness 8 is fitted tightly within the thickness 9 but projects therebeyond at one end as shown at 12, thereby to abut against the end of the thickness 4 and lap the cylindrical portion 3, which, in turn, abuts against the end of the outer thickness 9. (See Figure 2.) A bottom disk

13, having an annular flange 14 depending therefrom, is adapted to bear against the lower end of the thickness 8, and the outer thickness 9, which projects beyond the flange 14, is adapted to be turned in, as at 15 to bear against the bottom surface of the disk 13 and provide a channel 16 in which the flange 14 will rest. It is to be understood that the paper forming the wall thicknesses and the bottom disk is suitably prepared to withstand the action of moisture and any suitable adhesive is employed to hold the parts assembled properly.

Fitted on the small end portion of the bottle wall formed as described, is a paper ring 17 having one edge inturned at 18 to provide a double thickness and present an exterior shoulder 19 and an interior shoulder 20. Shoulder 20 is flush with the ends of the thicknesses 1 and 4 and cooperates therewith to provide a broad annular seat or shoulder for supporting the sealing disk of the bottle. Ring 17 is tapered and thus overhangs said annular seat as shown.

The sealing disk has been illustrated at 21 and is formed of paper suitably treated. The diameter of disk 21 is substantially equal to the greatest diameter of the seat provided therefor and is greater than the diameter of the opening in the upper end of the ring 17. A circular depression 22 is formed in the disk and is so proportioned that when the disk is fitted on its seat the depression will extend into the open end of the bottle wall and act as a plug. Spaced weakened portions are provided in the disk, as shown at 23 whereby the disk can be punctured readily when it is desired to remove the contents of the bottle or when it is desired to remove the disk from its seat.

It will be apparent that the disk can not be placed in position on its seat without snapping it into the contracted upper end of the ring 17 so that it can rest firmly on the seat. Removal of the disk thereafter without detection is prevented because it becomes necessary to perforate it with some implement in order to properly engage and withdraw it. By having spaced openings in the disk the contents of the bottle can be poured out without removing the disk.

For the purpose of sealing the disk in the bottle and protecting the mouth of the bottle, there is provided a sealing cap also formed of paper and indicated generally at 24. This cap includes a disk having a depression 25 insertible into the neck ring 17 and adapted to rest on and constitute a backing for the disk 22. An annular flange is formed at the margin of the disk, as at 26 and is formed with an inturned edge portion 27 providing an interior annular shoulder 28. This inturned portion 27 is slightly spaced from the surface of the flange so as to be free to expand slightly when forced over the large end of the neck ring 17.

The sealing cap, which is of paper of suitable grade is rendered waterproof in any suitable manner and has the necessary degree of stiffness. The neck ring 17 is fixed to the wall of the bottle by a suitable adhesive and is also waterproof and of a sufficient degree of stiffness.

After the bottle has been filled the disk 22 is snapped into position as described. The sealing cap is then forced over the neck ring 17 so that the depression 25 will bear against the disk, as shown in Figure 2 and the shoulder 28 will snap under the shoulder 19 and fasten the cap to the neck ring. Thus the cap is held securely to place and cannot be removed from the bottle without mutilating it.

A bottle such as described will withstand the pressure exerted by a filling machine and, when filled and sealed, will meet the requirements of the states and communities. The substitution of one grade of milk for another grade without detection, is prevented, the window allows for proper inspection of the contents of the bottle, and as each bottle is to be discarded after use it is unnecessary to resort to sterilizing and pasteurizing as heretofore. The use of a bottle of this character makes it possible for the producer to bottle the milk at the dairy and ship it direct to the consumer, the construction of the bottle being such that it will withstand rough usage without breaking or leaking.

What is claimed is:—

1. A bottle formed of sheet paper, its body comprising interfitting sections placed end to end and forming a lap joint at their meeting ends.

2. A paper bottle including separate inner and outer thicknesses of paper interfitting to form a tapered end portion and a cylindrical end portion, one thickness of one portion lapping a thickness of the other portion at one end to form smooth, unbroken inner and outer surfaces at the joint.

3. A paper bottle including separate inner and outer thicknesses of paper interfitting and secured together to form a tapered end portion and a cylindrical end portion, the thicknesses of one portion abutting against the thicknesses of the other end portion at one end to form smooth continuous inner and outer surfaces on the bottle at the joint, each paper thickness of each portion of the bottle having its longitudinal edges lapping to form a reinforcing seam, the seam of one thickness being diametrically opposite the seam of the other thickness.

4. A paper bottle including interfitting inner and outer thicknesses of paper, and a neck ring of paper having an inturned edge portion engaging and secured to the outer

thickness, the free edge of said inturned portion and the adjacent ends of the inner and outer thicknesses cooperating to provide a disk supporting shoulder surrounded by the neck ring.

5. A paper bottle including inner and outer thicknesses of paper secured together and flush at one end, a paper neck ring having an inturned portion secured to the outer thickness, the free edge of said inturned portion cooperating with the flush ends to provide a relatively broad annular seat surrounded by the neck ring.

6. A paper bottle including inner and outer thicknesses of paper secured together and flush at one end, a tapered neck ring of paper having an inturned portion at its large end engaging and secured to the outer thickness, the edge of the inturned portion cooperating with the flush ends to form a seat or shoulder overhung by the ring, a disk of greater diameter than the opening in the small end of the neck ring and insertible into the ring for engagement with the seat, and a depressed portion in the disk insertible into the opening surrounded by the seat and constituting a plug.

7. A paper bottle including inner and outer thicknesses of paper secured together and flush at one end, a neck ring of paper having an inturned portion engaging and connected to the outer thickness and with its edge cooperating with the flush ends to form a seat, a disk insertible into the neck ring and onto the seat, a sealing cap including a depressed portion insertible into the neck ring and against the disk to hold it to its seat, a flange on the cap for surrounding the neck ring, and an inturned portion on the flange for engagement with the lower portion of the neck ring to hold the cap to the ring.

8. The combination with the wall of a paper bottle, of a tapered neck ring of paper having an inturned portion at its large end secured to the wall and cooperating with one end of the wall to form a disk supporting seat, there being an exterior shoulder formed by the neck ring and extending around the wall, a disk insertible into the neck ring and onto the seat, a sealing cap having a depressed portion insertible into the neck ring and against the disk to hold the disk to its seat, a flange on the cap, and an inturned edge portion on the flange yieldable radially relative to the flange, said inturned edge portion being shiftable into engagement with the exterior shoulder when the cap is forced onto the neck ring.

9. A paper bottle including a wall, a neck ring secured to and surrounding the wall, said neck ring having an inturned portion cooperating with one end of the wall to provide a seat, a disk detachably mounted on the seat and having a depressed portion insertible into the opening surrounded by the seat, to form a plug, a cap projecting into the neck ring and engaging the disk, and cooperating means on the cap and neck ring for holding the cap to the ring.

10. A paper bottle including a paper wall, and a neck ring of paper having an inturned edge portion engaging and secured to the wall, the free edge of said inturned portion and the adjacent end of the wall co-operating to provide a disk supporting shoulder surrounded by the neck ring.

11. A paper bottle including a wall of paper, a neck ring of paper connected to the wall, the end of the wall forming a seat, a disk insertible into the neck ring and onto the seat, a sealing cap insertible into the neck ring and against the disk to hold it to its seat, a flange on the cap for surrounding the neck ring, and an inturned portion on the flange for engagement with the lower portion of the neck ring to hold the cap to the ring.

12. A paper bottle including a wall, a neck ring secured to and surrounding the wall, one end of the wall forming a seat, a disk detachably mounted on the seat and having a depressed portion insertible into the opening surrounded by the seat to form a plug, a cap projecting into the neck ring and engaging the disk, and co-operating means on the cap and neck ring for holding the cap to the ring.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

RUTH M. OLIVER.

Witnesses:
HERBERT D. LAWSON,
I. E. SIMPSON.