

H. C. DE BAUN, M. M. SCHWER AND C. KERKHOF.
PAPER BOTTLE.

APPLICATION FILED SEPT. 24, 1919.

Patented Dec. 7, 1920.

2 SHEETS—SHEET 1.

1,361,370.

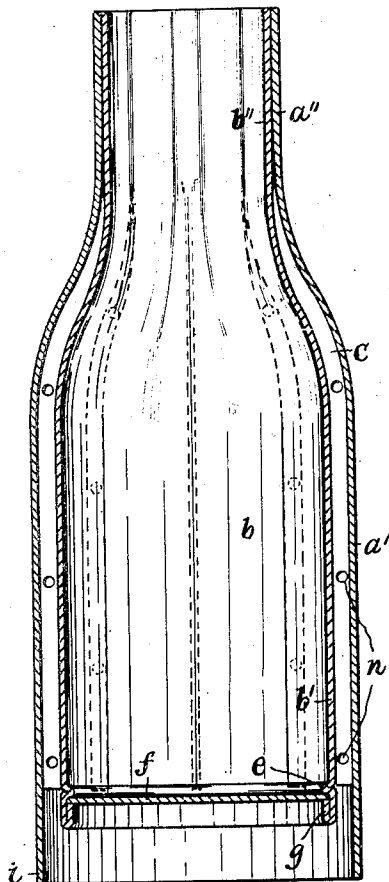


Fig. 2.

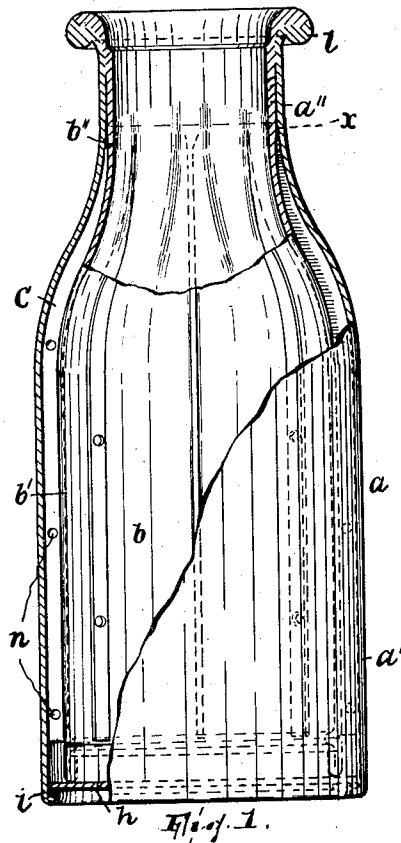


Fig. 1.

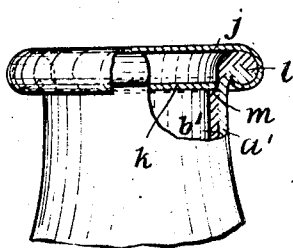


Fig. 4.

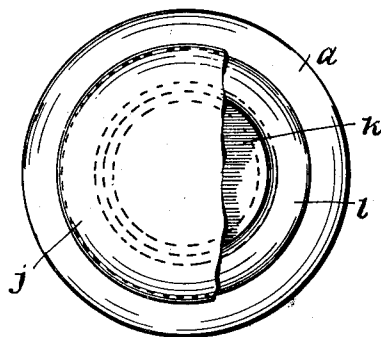


Fig. 3.

WITNESS

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2 SHEETS—SHEET 2.

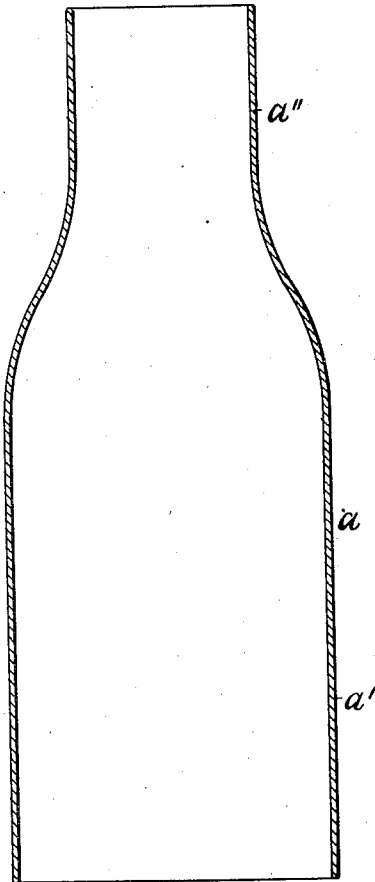


Fig. 5.

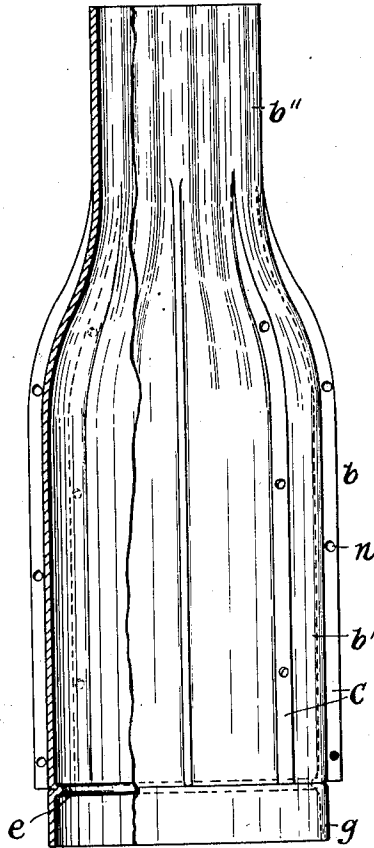


Fig. 6.

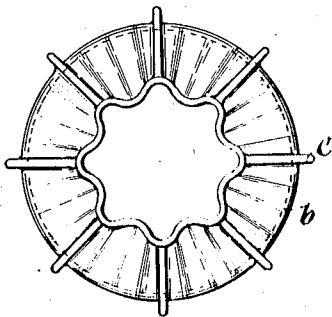


Fig. 7.

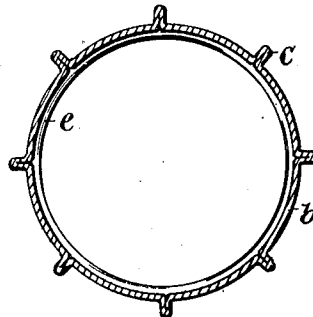


Fig. 8.

WITNESS

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UNITED STATES PATENT OFFICE.

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PAPER BOTTLE.

1,361,370.

Specification of Letters Patent.

Patented Dec. 7, 1920.

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To all whom it may concern:

Be it known that we, HARRY C. DE BAUN, MACK M. SCHWER, and CORNELUS KERKHOF, citizens of the United States, residing at Hackensack, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Paper Bottles, of which the following is a specification.

10 The object of this invention is to provide a non-breakable bottle or analogous container, especially for liquids, which will be inexpensive to manufacture and so constructed that it will withstand blows or strains that might rupture the same and result in loss of its contents and will insulate its contents from heat or cold and which may if desired simulate milk bottles of the type now in common use, especially to the end that provision shall be made for the seating of a paper disk closure in the mouth of the container and the application of a mouth sheath or cover.

In the drawings,

25 Figure 1 shows the completed bottle in side elevation, the walls of its two main members appearing partly broken away;

Fig. 2 is a vertical sectional view of the two main members preliminary to forming the container mouth and bottom;

30 Fig. 3 is a plan, showing the protecting mouth sheath, partly broken away, and the sealing disk;

Fig. 4 shows the mouth portion, partly broken away;

35 Fig. 5 is a vertical sectional view of the outer or housing member;

Fig. 6 is a side elevation, partly broken away, of the inner or receiver member;

40 Fig. 7 is a plan, and Fig. 8 a horizontal sectional view of the receiver member.

To form the container shown in the drawings its principal elements are preferably composed of paper of good thickness and sufficiently charged, as by impregnating, with paraffin or equivalent waxy material, plastic at least under heat, so that it will take and permanently hold any shape that may be imparted to it by dies or molds, as for example, bends, crimps, upsetting and the like; of course, in selecting the waxy material, whatever it is, it is chosen with a view to make it suitable with respect to the contents, as milk, for which the container is to be used.

There are two main elements or members, *a* and *b*, each generally tubular in shape and, in the present instance, each having in its initial form more or less the side elevational shape of an ordinary milk bottle to the extent, at least, that for the major portion of its length it is cylindrical and of one diameter, and for another portion cylindrical but of less diameter, with a taper joining the two cylindrical portions. The body portion of member *a*, marked *a'*, is somewhat greater in diameter than that, marked *b'*, of member *b*, but the neck or upper portion, marked *a''*, of member *a*, has about the same inside diameter as the outside diameter of the neck or upper portion *b''* of member *b*.

The outer member as it is above described is complete for the operation of assembling the two members as hereinafter explained.

75 The inner member *b*, however, is preliminarily formed with longitudinal crimps or ribs *c* all of uniform elevation and projecting outwardly and each preferably extending from near the bottom edge of the member to a point, as in the horizontal dotted line *x* marked in Fig. 1, where the walls of the (assembled) members *a* and *b* converge; these ribs in side elevation are beveled away at their upper ends, conforming to the inside shape of the member *a*. Member *b* also has an internal circumferential crimp or fold, producing a rib or flange *e*. To complete member *b* as shown, thus to make it a receiver member open at the top and closed at the bottom, there is a disk *f* which bears up against the rib or flange *e*, being held thereagainst by folding inwardly and upwardly the lower edge portion *g* of member *b*, the fold being a sharp or direct rebend and the edge *g* squarely abutting the disk, so that it is clamped uniformly all around between said flange and edge, the soft waxy nature of the waxed paper together with this clamping action sealing any interstice that otherwise might permit leakage. The joint, however, may if desired or necessary be specially treated to insure perfectly sealing the same.

Having thus formed the members *a* and *b* the member *b* is introduced into member *a* as shown in Fig. 2, its upper end portion *b''* then snugly fitting the upper end portion *a''* of member *a*, and its ribs *c* at their edges bearing throughout their length against

member *a*, so that they serve as radial spacers between the two members. In this connection it will be observed that on account of the double-walled form of the container, with the spacing ribs *c*, the container is exceedingly well adapted to withstand side-wise crushing strains.

To support the member *b* in member *a* preferably a disk *h* is introduced into the bottom of member *a* and arranged to bear against the rebent bottom edge of member *b*, whereupon the bottom edge *i* of member *a* is returned and upbent against the disk—Fig. 1.

In forming the mouth of the container it is preferable to provide a thickened-up portion or lip to give a finish and afford means for attaching some covering device, as for instance a protecting sheath *j*, and also, in the case of a milk bottle, for example, to provide within the mouth a circumferential seat for a paper sealing disk *k* or equivalent. All the operations of forming crimps, bends, and the like are or may be produced by dies in the presence of heat, the material setting permanently in the shape given it by the die due to the waxy nature of the substance with which the paper is treated. This treatment is applied in forming the mouth, which has the thickened-up shape, presenting an outwardly projecting lip, indicated at *l* in Figs. 1, 3 and 4; that is to say, by suitable dies, the upper edges of the members *a* and *b* being primarily as in Fig. 2, said edges are by the pressure of a superimposed upsetting die member and a surrounding underneath supporting and lip-forming die member crushed and reformed into the shape *l* shown best by Fig. 1, the result being in effect to weld the two paper layers into a single ring-shaped mass, especially in view of the presence of heat to fuse the waxy material. The upper die (or it may be another tool in a separate operation) may form the seat *m* for the disk *k*.

When the article has been formed as described, *i. e.*, with the receiver member *b* within and held spaced from the housing member *a* by the ribs *c* and also held against longitudinal shifting relatively to the housing member by being clamped between the tapered portion of member *a* where ribs *c* or equivalent limited-contact projections bear against the same on the one hand and the inturned edge *i* and disk *h* on the other, and by the shaping of the upper edges of said members into the lip *l*, a container is produced which is obviously exceedingly strong and light and inexpensive to manufacture.

It will be observed that the air which is contained within the space between members *a* and *b* serves as heat insulation, to keep the contents cold or warm as the case may be.

Circulation of the air around member *b* may be permitted by perforating ribs *c*, as at *n*.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. A container including an inner tubular receiver member closed at the bottom and open at the top and a tubular housing member inclosing the receiver member, one member having an upward taper and the other projections bearing against said taper, and the housing member thus affording a stop to upward movement of the receiver member and having its bottom portion holding said receiver member pressed upwardly against said stop.

2. A container including an inner tubular receiver member closed at the bottom and open at the top and a tubular housing member inclosing the receiver member, said members having concentric upward tapers and one member having projections bearing against the taper of the other member, and the housing member thus affording a stop to upward movement of the receiver member and having its bottom portion holding said receiver member pressed upwardly against said stop.

3. A container including an inner tubular receiver member closed at the bottom and open at the top and a tubular housing member inclosing the receiver member, one member having an upward taper and the other longitudinal ribs bearing against said taper, and the housing member thus affording a stop to upward movement of the receiver member and having its bottom portion holding said receiver member pressed upwardly against said stop.

4. A container including an inner tubular receiver member closed at the bottom and open at the top and a tubular housing member inclosing the receiver member, one member having near the top an upward taper and the other longitudinal ribs extending from near the bottom to near the top thereof and bearing against said taper, and the housing member thus affording a stop to upward movement of the receiver member and having its bottom portion holding said receiver member pressed upwardly against said stop, said ribs bearing below said taper against the member having the taper.

5. A container including an inner tubular receiver member closed at the bottom and open at the top and a tubular housing member inclosing the receiver member, one member having an upward taper and the other projections bearing against said taper, and the housing member thus affording a stop to upward movement of the receiver member and having at its bottom portion an inward support holding said receiver member pressed upwardly against said stop.

6. A container including an inner tubular receiver member closed at the bottom and open at the top and a tubular housing member inclosing the receiver member, one member having an upward taper and the other
5 projections bearing against said taper, and the housing member thus affording a stop to upward movement of the receiver member

and having means below the stop to hold the receiver member pressed upwardly against the stop. 10

In testimony whereof we affix our signatures.

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