W. L. WRIGHT.

PAPER RECEPTACLE AND THE LIKE.

APPLICATION FILED MAR. 30, 1915.

1,196,830.

Patented Sept. 5, 1916.

Fig. 1.

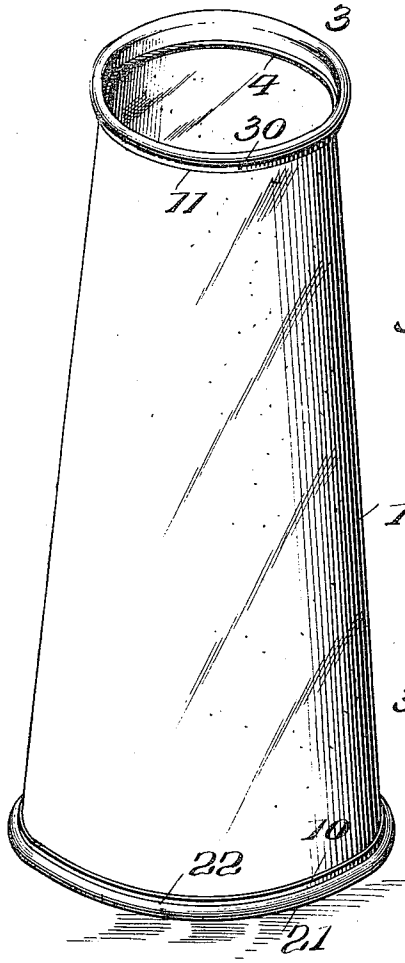


Fig. 2.

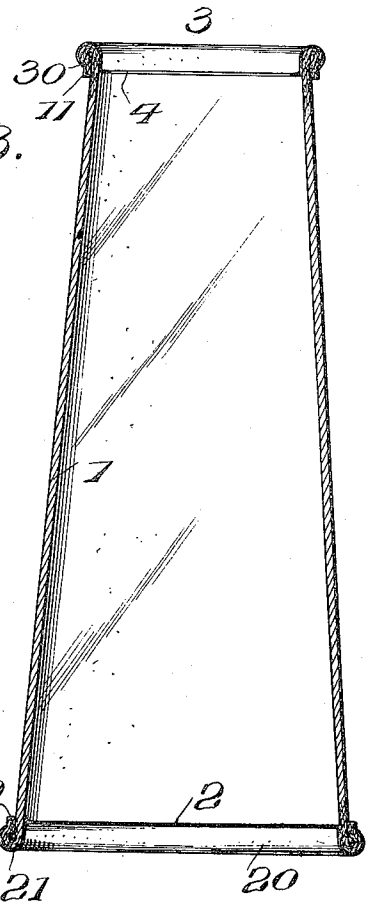


Fig. 3.

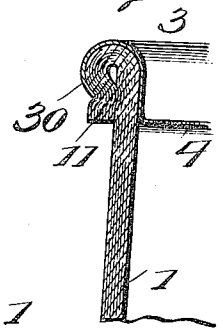


Fig. 7.

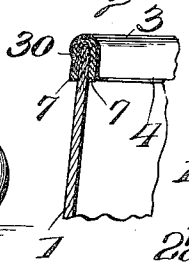


Fig. 4.

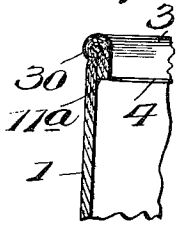


Fig. 5.

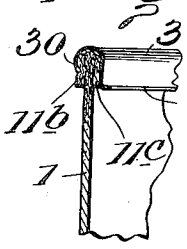
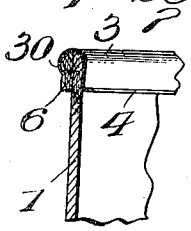


Fig. 6.



Witness

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By

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UNITED STATES PATENT OFFICE.

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PAPER RECEPTACLE AND THE LIKE.

1,196,830. Specification of Letters Patent. Patented Sept. 5, 1916.

Application filed March 30, 1915. Serial No. 18,078.

To all whom it may concern:

Be it known that I, WILBUR L. WRIGHT, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Paper Receptacles and the like, of which the following is a specification.

This invention relates to certain improvements in paper vessels and the like; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanation of the accompanying drawings illustrating what I now believe to be the preferred embodiment or mechanical expression of my invention from among other forms and arrangements within the spirit and scope thereof.

An object of the invention is to provide means whereby bottles and other vessels having thin paper walls can be provided with pinched on metal ends without liability of cutting through or severing the thin paper walls by the act of pinching the edges of the metal ends thereinto.

A further object of the invention is to provide thin wall paper bottles and other receptacles with pinched on metal ends and cushioning means to prevent the pinched in metal edges from severing or cutting through said walls.

The invention consists in certain novel features in construction and in combinations and arrangements as more fully and particularly set forth and specified hereinafter.

Referring to the accompanying drawings: Figure 1, is a perspective view of a thin wall paper vessel embodying my invention. Fig. 2, is a longitudinal section of the vessel of Fig. 1. Fig. 3, is a detail section on an enlarged scale. Figs. 4, 5, 6, and 7, are detail sectional views showing modifications.

My present invention involves the provision of a thin wall paper bottle, or other vessel or receptacle, either cylindrical, conical, tapered or of other form, with ends of sheet or other metal or stiff strong material permanently secured to the paper walls by closing the annular edges of the ends inwardly against said walls to tightly pinch and grip the same, whether the bottom closures, or the top mouths or rings, or both, of the bottle or other receptacle, constitute the ends above referred to.

Metal ends can be readily secured to the heavy thick walls of paper canisters and the like, by pinching the edges of said metal ends into said paper walls without danger of puncturing or severing such walls, but to permanently secure sheet metal ends to the paper walls of thin wall bottles and receptacles by pinching the edges of the ends into said thin walls presents a difficult problem because of the thinness of such walls and the danger of the pinched in metal edges cutting through said walls. The wall of such a thin-wall receptacle is usually formed by a single ply of comparatively thin paper having its overlapping ends cemented or otherwise secured together forming a longitudinal seam throughout the length of the wall. These thin wall receptacles are usually paraffined or otherwise treated after the completion of the receptacles to stiffen such walls and render the same impervious to moisture. These thin wall receptacles are usually intended to be used but once, as for milk delivery or other purposes, and then thrown away. Hence such thin wall receptacles must be produced at an exceedingly low price and yet must be of sufficient strength and durability to stand up and remain liquid tight for a considerable length of time after being filled. Furthermore, such thin wall receptacles must be of sufficient strength to withstand the stresses to which milk or other bottles are subjected when being filled and capped by machinery, as well as during shipment and delivery.

With particular reference to the type of bottle or other receptacle illustrated by Fig. 1, of the drawings, I show a tube-like thin or single-ply paper material wall 1, which can be either cylindrical or tapered (conical) and which is closed at the lower end by a sheet metal end 2, forming the closed liquid tight bottom of the bottle, while the mouth or top of the bottle is formed by sheet metal end 3, composed of a ring providing any suitable internal seat 4, in the bottle mouth to receive a suitable closure such as a paper material disk, commonly known as a milk cap, although my invention is not limited to any particular form or construction of closure for the mouth of the bottle. The bottom of the bottle is, in this instance,

formed by an imperforate sheet metal disk 2, having its surrounding annular edge portion depressed to form a depending annular edge wall 20, snugly fitting the inner surface of the lower end of the paper wall 1, and merging downwardly into an out-turned annular portion 21, fitting and passing outwardly over the lower edge of said wall 1, and turned up at the outer surface of said wall with its edge 22, turned and pinched inwardly thereinto. The bottle is thereby formed with an elevated bottom and is provided with a depending annular rim, flange, or base.

The lower edge of the paper wall is cushioned in any suitable manner to prevent the pinched in edge 22, of the metal end from severing or cutting through the paper wall and to permit said edge 22, being pinched in under sufficient pressure to form a liquid tight permanent joint between the paper wall and the metal end.

Various means or arrangements can be provided for cushioning either or both ends of the thin paper wall to coöperate with the pinched in and gripping edges of the metal ends to attain the hereinbefore mentioned results. For instance, in the construction typified by Fig. 1, of the drawings, a short length 10, of the lower end of the thin paper wall is doubled back on itself by being turned outwardly, upwardly and inwardly and tightly compressed to form the lower end of the wall with a doubled or two-ply edge. The depending annular socket or trough-like edge portion of the end 2, receives or embraces this doubled edge of the paper wall and fits the inner and outer surfaces thereof and the free outer edge 22, of the metal is tightly compressed thereinto and buried therein to a greater or lesser extent and the doubled edge is thereby rigidly and tightly compressed and clamped between the inner and outer walls of the metal end forming a liquid tight joint due to the pinched in edge. The cushioned edge of the wall prevents the pinched in metal edge from severing or weakening the wall and permits the formation of a tight joint. The sheet metal end 3, is in the form of a ring or annular trough having its inner edge preferably turned inwardly to constitute the annular depressed shoulder 4, in the bottle mouth on which any suitable closure can seat to seal or otherwise close the mouth of the bottle, while the outer annular edge 30, of the ring is pinched inwardly to permanently grip and lock the ring to and on the paper wall to form a liquid tight joint therewith.

The upper end edge of the thin paper wall is cushioned in any suitable manner, although in Fig. 1, I show the length 11, of said upper end folded outwardly and inwardly and compressed inwardly to form a doubled two-ply top edge that is tightly embraced and covered by the trough like ring with the annular edge 30, pinched tightly into and buried in the length 11, whereby said wall is cushioned against being severed or weakened during the pinching in process or thereafter.

The end of the paper wall can be doubled back at either the inner surface or at the outer surface of said wall, or both, or an additional or separate paper ring can be secured to either the inner or outer surface of the thin paper wall to form the cushion.

In the type of Fig. 1, I show the end of the paper wall turned outwardly and compressed against the outer surface of the wall, as hereinbefore described.

In Fig. 4, I show the end 11^a of the wall doubled back within the wall and compressed against the inner surface thereof to form the cushion. In this instance, as in the previous example referred to, the pinched in edge of the metal will compress the two plies of paper together, sometimes compressing the ply directly receiving the metal edge into the other ply.

In Fig. 5, I show the upper end of the wall doubled back both at the inner and outer surfaces of the thin wall to form the upper edge of the wall three ply. This can be done by longitudinally splitting the edge portion of the wall for a short distance and turning one half 11^b outwardly and inwardly against the outer surface of the body of the wall and the other half 11^c inwardly and downwardly against the inner surface.

In Fig. 6, I show the edge of the thin wall cushioned or formed two ply by the application of a separate paper ring, bushing or band 6, which can be cemented or otherwise secured to the wall.

In Fig. 7, I show the edge of the thin paper wall formed three ply by the application of a paper band 7 lapping the top edge of the thin wall and extending down at both the inner and outer surfaces thereof and suitably cemented or otherwise secured thereto. Of course, it is understood that both ends of the thin paper wall can be provided with these multi-ply edge portions where pinched in metal ends are to be applied to both ends of the wall, or where a pinched in metal end is applied to only one end of the vessel only that end of the wall will be cushioned or formed multi ply. My invention applies to either end formation of a thin wall paper vessel. It will be understood that if so desired the doubled back ends of the thin paper wall can be cemented down before the application and pinching in of the metal ends.

The several plies of paper at the end edges of the paper wall are compressed into each other to form a tight joint between said

plies, while the metal is so tightly held against or pressed into the paper as to form a tight joint between the paper and metal. The thin paper wall of the vessel can be formed by two (or possibly more) very thin sheets instead of one sheet, and of course the thin paper walls can be formed by spirally wound thin sheets instead of a folded sheet having its ends overlapping to form a longitudinal seam. In the drawings, the thin paper wall 1, is shown considerably exaggerated in thickness for purposes of illustration.

It is evident that various changes, variations, and modifications might be resorted to, that the paper vessel or bottle might be formed with a bottom other than that disclosed and not according to my invention or that it might be formed with a top other than that disclosed and not according to my invention, so long as one end of the bottle or other receptacle be provided with means in accordance with my invention, without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact disclosure hereof.

What I claim is:

1. A paper receptacle having a surrounding thin wall of paper with its annular end edge cushioned and formed multi-ply by doubling back and annularly compressing the end portion of the thin wall upon itself, and a sheet metal end for said receptacle having an annular trough-like portion fitted over said cushioned doubled edge and embracing the same and engaging the inner and outer surfaces thereof and having an inturned annular free edge pinched radially directly into said cushioned edge and compressing together the plies thereof, for the purposes substantially as set forth.

2. A paper receptacle having a surrounding thin wall of paper with its annular end edge cushioned and formed multi-ply by doubling the end portion of the thin wall outwardly and compressing the same radially against the outer surface of the thin wall, and a sheet metal end for said receptacle having an annular trough-like portion fitted over said doubled edge and engaging the outer surface thereof and the inner surface of the end edge of the receptacle and having an annular outer edge turned inwardly and radially compressed into said doubled over edge so as to bite therein and compress the paper plies radially together to form a permanent tight joint between the sheet metal end and the paper wall.

3. A paper bottle or other receptacle having a surrounding single-ply thin paper wall provided with a multi-ply end edge and a metal end embracing said edge and compressed longitudinally thereonto and pinched thereinto to form a permanent liquid tight joint, substantially as described.

4. A bottle or other receptacle having a thin paper inclosing wall, one end edge of said wall being thickened and thereby cushioned, and a sheet metal end embracing and fitting both the inner and outer surfaces of said cushioned edge and tightly gripping the same and having an annular edge pinched tightly into said cushioned edge, substantially as described.

5. A paper bottle having a thin surrounding paper wall with an annular end edge formed multi-ply by being doubled upon itself and thereby thickened and cushioned, and a sheet metal end surrounding said paper wall edge at the inner and outer sides and the edge extremity thereof and clamped thereto and having its annular edge pinched and extending radially thereinto to permanently lock the end to the wall and to form a liquid tight joint therewith.

6. A paper receptacle having a surrounding thin wall of paper with an annular end edge cushioned and of increased thickness by being formed of several paper material plies, and a sheet metal end fitted and longitudinally compressed on said edge and clamped thereto and having its annular outer edge turned inwardly and radially and pinched directly into said cushioned edge and approximately buried therein, substantially as and for the purposes described.

7. A paper receptacle having a surrounding thin paper wall provided with a multi-ply annular end edge portion formed by doubling the paper wall back upon itself, and a metal end permanently and tightly fitting and compressed against the edge and inner and outer surfaces of said multi-ply end portion to embrace said end portion and form a tight joint therewith.

In testimony whereof I affix my signature in presence of two witnesses.

WILBUR L. WRIGHT.

Witnesses:
HOWARD G. BISHOP,
AGNES M. MOORE.