Jan. 22, 1929. 1,699,549

I. STANLEY

RECEPTACLE AND METHOD OF MAKING SAME AND MEANS TO SEAL THE COLLAPSED AND CLOSED END

Filed May 11, 1925

Fig. 1.

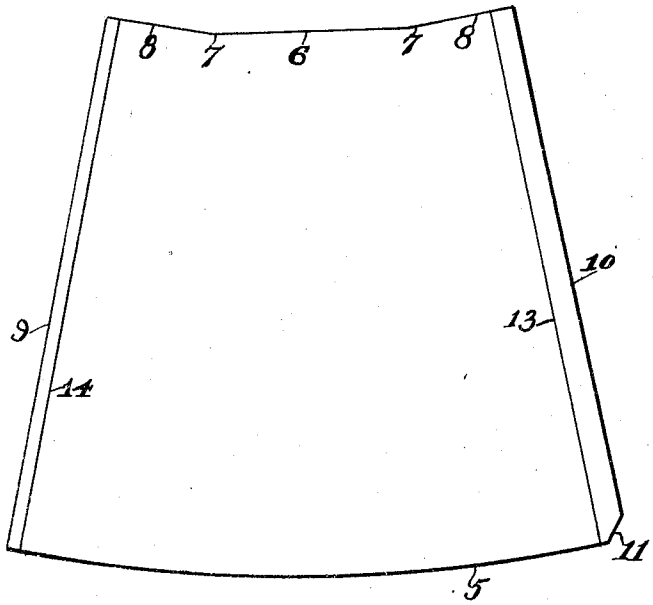


Fig. 4.



Fig. 3.

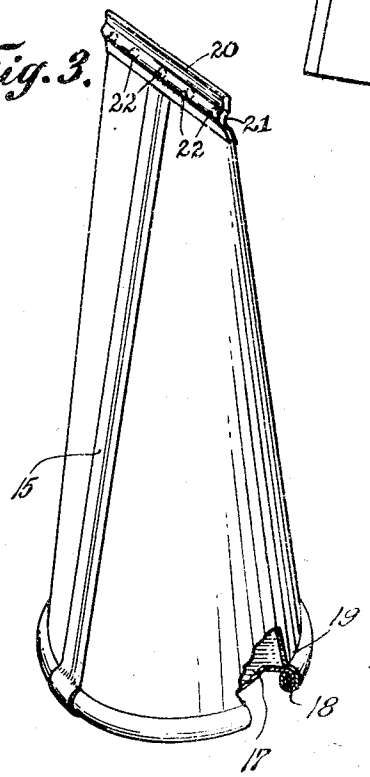
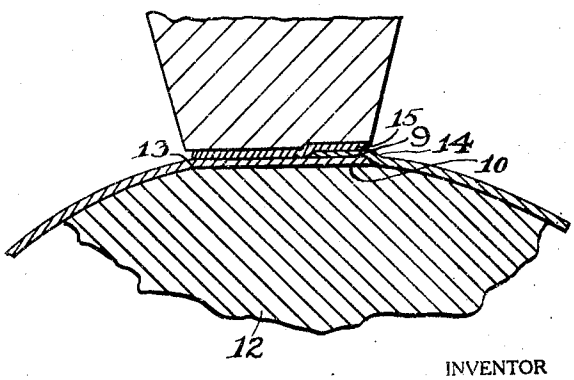


Fig. 2.



INVENTOR

Irving Stanley

BY John O. Seifert

ATTORNEY

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UNITED STATES PATENT OFFICE.

IRVING STANLEY, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO SEALED CONTAINERS CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

RECEPTACLE AND METHOD OF MAKING SAME AND MEANS TO SEAL THE COLLAPSED AND CLOSED END.

Application filed May 11, 1925. Serial No. 29,361.

This invention relates to receptacles as disclosed in Letters Patent No. 1,467,123 dated September 4, 1923, wherein a suitable blank of paper is rolled to tubular form and secured at the longitudinal edges by a strip engaged over the lapped edge portions of the blank to form a receptacle body of truncated conical form, which body is arranged with a closure at the larger end and the smaller or open end is adapted to be callapsed or squeezed together to close the same, and it is the primary object of the present invention to provide an improved constructed and arranged receptacle of this character and method of making the same.

To retain the collapsed end in collapsed condition and to seal the same a pliable metallic strip bent longitudinally upon itself to substantially V-shape in cross section is engaged over the collapsed end and clamped thereto. Great difficulty has been experienced in providing a liquid tight seal between the closure member and the receptacle, and it is an object of the present invention to provide improved means and method of attaching the closing member of the collapsed end of the receptacle to seal the same.

In the drawing accompanying and forming a part of this specification, Figure 1 is a plan view of a blank from which the receptacle body is formed.

Figure 2 is a fragmentary view on an enlarged scale to show the method of securing and sealing the blank at the longitudinal marginal edge portions.

Figure 3 is a perspective view of a receptacle constructed and arranged in accordance with the present invention and showing an improved means and method of sealing the collapsed end, a portion of the receptacle being broken away to show the manner of securing a closure at one end; and

Figure 4 is a cross sectional view on an enlarged scale of the upper end of the closed receptacle to show the manner of sealing the collapsed end of the receptacle.

In carrying out the invention I provide a blank as shown in Figure 1 with one end 5, to constitute the bottom of the receptacle, of curved form, while the opposite end to constitute the top or open end of the receptacle has a portion 6 which is horizontal to a line extending centrally and longitudinally through the blank which horizontal portion merges at 7 with portions 8 extending at oblique angles to the horizontal portion to the side edges of the blank. The opposite side edges 9, 10 diverge at the same angle from the top to the bottom of the blank with the corner at the juncture of the side edge 10 with the bottom cut away, as at 11, for a purpose to be hereinafter described. The blank so formed is wrapped around a mandrel or horn, a part of which is shown at 12 in Figure 2, to form a receptacle body of truncated cone shape the bottom of which is substantially at a right angle to the longitudinal axis of the body, and the upper edge of which has a portion intermediate the side edges of greater length than the portions adjacent the opposite side portions, but which portion when said end is collapsed to close the receptacle will merge with said side portions and extend in a plane substantially at a right angle to the longitudinal axis of the body. The body is secured at the longitudinal edges by a lap and butt joint by applying a sealing strip over said joint. To form this joint the marginal edge portion 10 is offset relative to the body of the blank, as indicated by the line 13, and the marginal edge portion 9 is similarly offset, as indicated by the line 14, but in a direction opposite to and to a less extent than the marginal portion 10 and adapted to be engaged at the outer side thereof so that the edge 10 will be in abutting relation to the shoulder formed by the offset portion 14, as clearly shown in Figure 2, when the blank is wrapped around the mandrel 12 to form the blank into a tube and preparatory to securing and sealing the blank at the longitudinal edge portions. The blank is secured and sealed at the longitudinal marginal portions by a strip 15 adhesively applied to the outer side under pressure, and preferably under heat, while on the mandrel 12 by a ram or plunger, the mandrel being arranged with a relatively flat portion of an extent substantially equal to that of the offset portion 13, and the face of the ram or plunger is undercut to accommodate the lapped portions thereby assuming positive contact between the strip 15 and the joint.

The enlarged end of the receptacle body so

formed is provided with a closure, comprising a flanged disk 17 inserted into the end of the body with the flange extending outward and secured therein by rolling or curling the disk flange and adjacent edge portion of the body inward, so that the outer marginal portion of the receptacle body will be folded over the edge of the disk flange and the outer marginal portion of the disk flange will be folded over the edge of the receptacle body and forming in effect a lock seam, as shown at 18. By cutting away the corner 11 from the blank this rolling of the disk flange and receptacle together is facilitated and provides a close and tight joint. This rolling or interfolding of the flange of the disk and receptacle body is effected by folding and calendering rollers rotated at high velocity and applied to the marginal end portions of the receptacle body and disk flange under pressure to bring all of the inter-folded portions of the body and disk flange into intimate and firm contact. Simultaneously with the engaging of the disk closure in the receptacle body the body within the disk is arranged with an annular shoulder, as at 19, for the abutment and seating of the disk closure and prevent the movement of the closure into the receptacle body by inward pressure thereon with the possibility of pulling rolled or folded portion of the disk flange out of relation with the curled or folded portion of the receptacle body and a consequent leakage of the contents of the receptacle. The receptacle as described is subjected to a paraffine bath both on the interior and exterior to make the same moisture and waterproof.

To close the receptacle the open end is collapsed or squeezed together and sealed in such condition. To retain the collapsed end in collapsed condition and to seal the same a metallic strip 20 bent longitudinally upon itself to V or U shape is engaged over the collapsed end and then pressed together to firmly clamp the sealing strip to the receptacle. A strip thus clamped to the receptacle will serve to retain the open end of the receptacle clamped and closed and under ordinary use maintain a liquid tight seal. However, the material from which the receptacle is made being flexible should the receptacle be subjected to external pressure when it is filled to capacity, and especially so should the receptacle be in an inverted position, the force of the pressure of the liquid within the receptacle will tend to slightly expand the wall at the collapsed end and a consequent spreading of the closure strip 20 with the result that there will be a leakage. To overcome this disadvantage and to assure a positive liquid tight seal the closure strip simultaneously with the clamping of the strip to the collapsed receptacle end, or after it has been clamped to the collapsed receptacle end, is fluted or corrugated longitudinally, as at 21. This corrugating of the clamping member with the interposed receptacle not only presses and holds the opposite walls of the receptacle in close relation, but also reinforces and stiffens the clamping strip and tends to hold it in its clamping position. To further seal the receptacle and prevent longitudinal displacement of the sealing member as well as tampering with the contents of the receptacle by removing and replacing the clamping strip the material of the strip is interlocked with the material of the receptacle by tit-like projections 22, which projections are formed as by punching from the material of the sealing strip or member at one side of the receptacle and forcing the same into the interposed material of the receptacle and opposite side portion of the sealing strip. These projections may be suitably arranged in the clamping member but are shown as located along the longitudinal crimp 21.

Having thus described my invention, I claim:

1. The method of making receptacle bodies, consisting in providing a paper blank of suitable shape, offsetting the opposite longitudinal marginal edge portions relative to the body of the blank, shaping the blank to tubular form with one off-set marginal portion lapped over the other off-set marginal portion and the edge of the lower portion in abutting relation to the shoulder formed by the off-set of the outer portion, and applying a sealing strip to the overlapped marginal portions of the blank.

2. The method of making receptacle bodies as claimed in claim 1, wherein the sealing strip is adhesively applied to the overlapped marginal portions.

3. The method of making receptacle bodies as claimed in claim 1, wherein the blank is shaped to tubular form by wrapping the same around a mandrel with the overlapped marginal portions in relation to a flattened portion of the mandrel, and the sealing strip is applied adhesively under pressure over the lapped portions of the blank while on the mandrel.

4. The method of making receptacles, consisting in providing a blank, shaping the blank to tubular form and securing the same at the longitudinal marginal portions to form a receptacle body, providing a flanged disk and engaging the same into one end of the receptacle body with the flange extending outwardly in contiguous relation with the marginal end portion of the receptacle body to serve as a closure therefor, and simultaneously with the engaging of the disk in the receptacle body arranging the receptacle body within the disk with an annular shoulder for the seating of the disk against the same, and then subjecting the disk flange and contiguous end portion of the body to the action of rollers and pressure to roll the contiguous

portions of the body and disk flange inward into intimate and firm inter-folded relation with the marginal portion of the body folded over the edge of the disk flange and the disk flange folded over the edge of the receptacle body.

5. A receptacle body consisting of a blank having the opposite longitudinal marginal portions offset to opposite faces of the blank and shaped to tubular form with the offset marginal portions in overlapped relation to form a lap and butt joint, and a strip adhesively applied over said lapped portions.

6. In a receptacle, the combination with a body of truncated cone shape having a closure disk secured at the larger end and the smaller end adapted to be collapsed to close the same, of means to seal the collapsed end comprising a metallic strip bent longitudinally upon itself to V shape in cross section engaged over and clamped to the collapsed end, and said strip as it is clamped to the collapsed receptacle end being simultaneously fluted longitudinally with the interposed collapsed end of the receptacle to interlock the material of the receptacle with said clamping strip and thereby seal the receptacle and said clamping strip to the receptacle.

7. A receptacle as claimed in claim 6, wherein the sealing member is further sealed to the receptacle by offsetting members of the material of the sealing member at one side of the receptacle and forcing the same into the interposed material of the receptacle and correspondingly offsetting outwardly portions of the opposite side portions of the material of the sealing member to interlock portions of the material of the sealing member and receptacle to prevent longitudinal displacement of the sealing member from the receptacle.

Signed at New York city, in the county of New York and State of New York, this 1st day of May, 1925.

IRVING STANLEY.