Feb. 9, 1932. J. O. SEIFERT 1,844,825

RECEPTACLE AND METHOD OF MAKING AND CLOSING THE SAME

Filed July 12, 1928

Fig. 1.

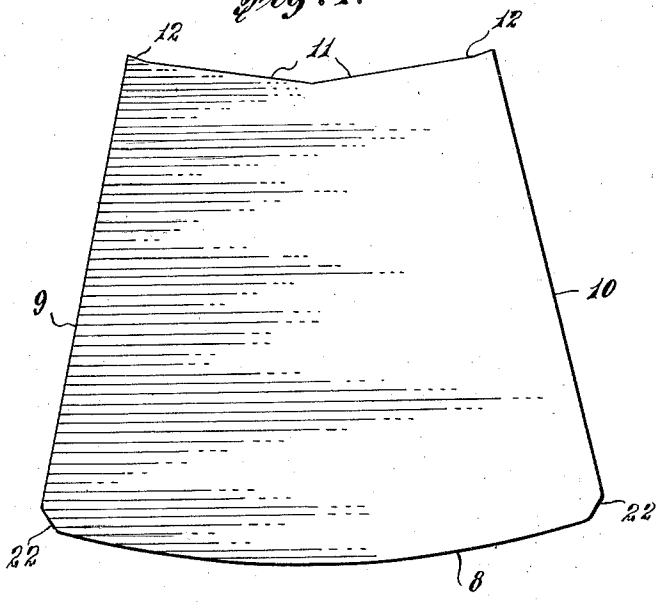


Fig. 6.

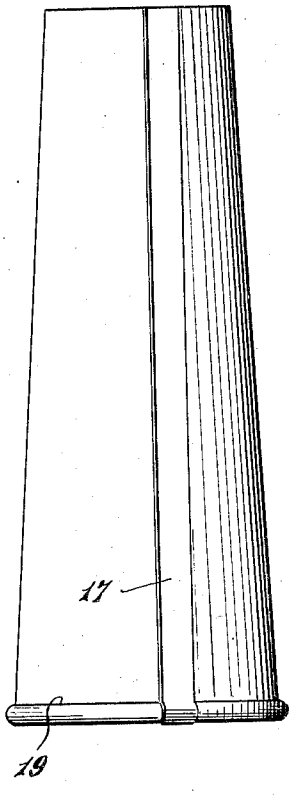


Fig. 2.

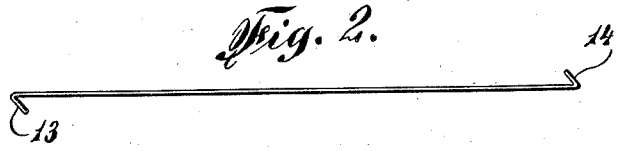


Fig. 4.



Fig. 5.

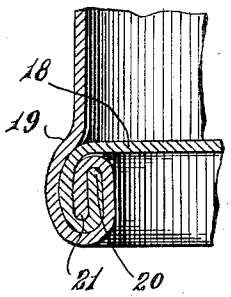
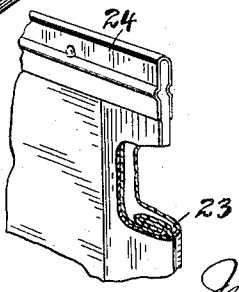


Fig. 3.

Fig. 7.



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UNITED STATES PATENT OFFICE

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RECEPTACLE AND METHOD OF MAKING AND CLOSING THE SAME

Application filed July 12, 1928. Serial No. 292,109.

This invention relates to receptacles of truncated conical form made of paper paraffine and adapted to carry liquid, such as milk, wherein the receptacle body is made from a blank formed to tubular shape and secured at the longitudinal marginal portions and a closure secured in the larger end of the body to constitute the bottom, the throat of the receptacle being at the smaller end and adapted to be closed by pressing together the opposite wall portions of the receptacle at the open end, and then securing and sealing the closed receptacle end by engaging a metallic strip over and clamping the same to the collapsed receptacle end.

It is the primary object of the invention to provide an improved constructed and arranged receptacle of this character and to the method of making the same.

A further object of the invention relates to improved means for and method of securing the blank at the longitudinal marginal portions to form the receptacle body and arrange the same with a liquid tight seal.

Another object of the invention relates to an improved method of collapsing the open end of the receptacle to close the same whereby the stresses and strains of the callapsing force which tend to distort the wall of the receptacle body will serve to exert a force on the portions of the receptacle at which it is secured at the longitudinal marginal portions to maintain the connected portions in firm and intimate contact.

Still another object of the invention relates to an improved died out blank for making the body of a receptacle of truncated conical form.

In the drawings accompanying and forming a part of this application I have illustrated an embodiment of my improved receptacle, wherein Figure 1 is a plan view of my improved died out blank from which the receptacle body is formed.

Figure 2 is an end elevation of the blank looking in a direction from the bottom of Figure 1 and showing the blank as arranged with hooks at the opposite longitudinal edges.

Figure 3 is a perspective view showing the manner of forming the blank to cylindrical form and the interlocking of the hooks at the longitudinal edges.

Figure 4 is a cross sectional detail view, on an enlarged scale, to show the manner of interlocking the hooked edges of the blank and the means and method of sealing said interlocked hooked edges.

Figure 5 is a sectional view, on an enlarged scale, of a portion of the receptacle to show the manner of securing a flanged disk bottom therein.

Figure 6 is a side elevation of the formed receptacle; and

Figure 7 is an elevational view of the upper end of the receptacle, partly broken away, to show the manner of collapsing the receptacle to close the open end and the means for securing said end in collapsed condition and sealing the same.

In carrying out the embodiment of the invention illustrated there is provided a blank as shown in Figure 1 cut out from a sheet or a web by a suitable die, said blank being substantially of quadrilateral form, having the one end to constitute the base or bottom of the receptacle or container, arranged in an arc of a circle, as shown at 8, whose center lies in a line extending vertically to said base end of the blank and substantially centrally between the opposite side edges 9, 10 of the blank to converge at the same angle toward each other toward the top edge of the blank. The top or upper edge of the blank is a chord of the angle formed and intercepted by the sides 9, 10 and embodies four straight line parts 11, 12 arranged at an obtuse angle to each other, the two intermediate parts 11 being of equal length and each of said parts arranged and dimensioned to constitute a side of the upper edge of the receptacle to extend in the same straight plane when the receptacle end is collapsed. The end parts 12 are of equal length and arranged at a greater angle than said intermediate parts and bent or folded in opposite directions, as shown at 13 and 14, to constitute hook portions of a lock seam for securing the blank at the longitudinal marginal portions.

To form the receptacle body the blank

is wrapped or folded around a mandrel or horn and the hook portions 13, 14 formed at the longitudinal marginal portions and extending in opposite directions are interlocked and the blank secured with said hook portions in said condition. The hooks may be arranged on the blank previous to the wrapping of the same around the mandrel and are of a length equal to the length of the angle portions 12 of the blank. The interlocked hook portions of the blank are adhesively secured together, as by applying an adhesive to the outer surface of the outer hook portion and the adjacent outer surface of the receptacle blank, as shown by stippling at 16 in Figure 3, and pressure applied thereto to force the hook portions and the surfaces with the adhesive applied thereto into firm and intimate contact. The preferred method of securing the hook portions interlocked and the sealing of the receptacle is by adhesively applying a strip 17 over the juncture of the seam formed by the interlocked hook portions and the adjacent receptacle portion under pressure on the mandrel without the applying of an adhesive to the hook portions of the receptacle blank, although if desired adhesive may also be applied to said hook portions thus further assuring the securing and sealing of the same.

A closure is then applied to the large end of the receptacle body to constitute the bottom, this closure comprising a flanged disk 18 of relatively stiff material engaged in the end of the receptacle body with the flange extending outward in contiguous relation to the end portion of the receptacle body and seated against an annular shoulder extending outwardly from the receptacle body, as at 19, which shoulder may be formed simultaneously with the engaging of the closure disk in the receptacle end. The contiguous portions of the disk flange and receptacle body are then folded inwardly with the material of the receptacle folded over the edge of the disk flange, as at 20, and the disk flange folded over the edge of the receptacle end, as at 21, and said interlocked portions folded into firm and intimate contact by the calendering action of rollers, this operation being performed by what is commonly termed "spinning".

To facilitate the interfolding or interlocking of the receptacle with the flange of the receptacle disk 18 and obviate too great a number of plies of material at the fold the corner portions of the blank at the juncture of the sides with the base are cut away, as at 22, to a width equal to the hooks and of a length equal to the end portion 20 of the receptacle blank folded over the edge of the disk flange.

The receptacle so formed is then subjected to a paraffine bath, which not only renders the material of the receptacle impervious to liquid and moisture, but also entering and filling any interstices in the side seam of the receptacle blank and also in the seam between the connection of the closure disk and the receptacle body.

To close the receptacle the throat or open upper end of the receptacle is collapsed by compressing or pressing together the opposite wall portions. In the collapsing of the receptacle end the receptacle is positioned so that the one edge of the securing and sealing strip 17 will be in line, as well as a marginal portion of the interlocked hook portions, with the fold at one end of the collapsed receptacle wall, as shown at 23 in Figure 7. When the open end of the receptacle is collapsed there is effected a spiral formation of the sealing strip 17 and a distortion of the receptacle wall which sets up stresses and strains which exert a force or forces upon the seam formed by the interlocked hooks and the sealing strip in a direction toward each other and maintaining the same in firm and intimate contact, and thus obviating the possibility of breaking or unseating any paraffine which may have permeated into the joints of the seam and prevent any possibility of leakage. The upper end of the receptacle by the arrangement of the upper edge of the blank as described will be slightly inclined downward from the opposite sides at the longitudinal ends of the receptacle, and when the open end of the receptacle is collapsed it also spreads causing the middle portion to be slightly extended and drawing downward the lateral or side portions with the result that the top collapsed edge of the receptacle will be in a plane substantially horizontal to the axis of the receptacle and thus facilitating the engaging and securing of a sealing member to the collapsed receptacle end.

The receptacle end collapsed as described is secured and sealed in collapsed condition by a metallic member of V shape in cross section engaged over the collapsed receptacle end and clamped thereto, as shown at 24 in Figure 7.

Having thus described my invention I claim:

1. In a truncated conical receptacle, a blank having the opposite side edges converging from one end to the opposite end and arranged as reversely formed hooks adapted to be interengaged to form a receptacle body, the edge between the diverging sides to constitute the bottom end of the receptacle being of arcuate shape and the opposite edge to constitute the top and open end of the receptacle adapted to be collapsed to close the same, a chord of the angle formed and intercepted by the sides embodying four straight line portions arranged at an obtuse angle to each other, the two intermediate portions being of equal length and each of said portions arranged and dimensioned to constitute one side of the upper end of the receptacle when

it is collapsed, and the end portions being of equal length and arranged at a greater angle than said intermediate portions to constitute the hook portions of the lock seam for securing the blank at the longitudinal marginal portions, and a closure disk secured in the larger end.

2. As an article of manufacture, a blank for forming a tubular truncated receptacle body, comprising a died-out blank of quadrilateral form having one end to constitute the bottom end of a receptacle arranged of arcuate form with the opposite sides converging from said arcuate end, and the opposite end to constitute the upper open end of the receptacle adapted to be collapsed to close the same being a chord of the angle formed and intercepted by the sides and consisting of straight line parts arranged at an obtuse angle to each other, the intermediate parts being arranged to constitute the opposite sides of the upper edge of the receptacle and extend in the same straight plane when said end of the receptacle is collapsed, and the end parts to constitute hook portions to be interlocked to secure the blank at the longitudinal marginal portions and arranged to extend in the plane of the intermediate parts when the receptacle is collapsed.

Signed at the city of New York, in the county of New York and State of New York, this sixth day of July, 1928.

JOHN O. SEIFERT.