June 16, 1936. E. L. JONES 2,044,078

METHOD OF PARAFFINING RECEPTACLES

Original Filed July 24, 1929 5 Sheets-Sheet 1

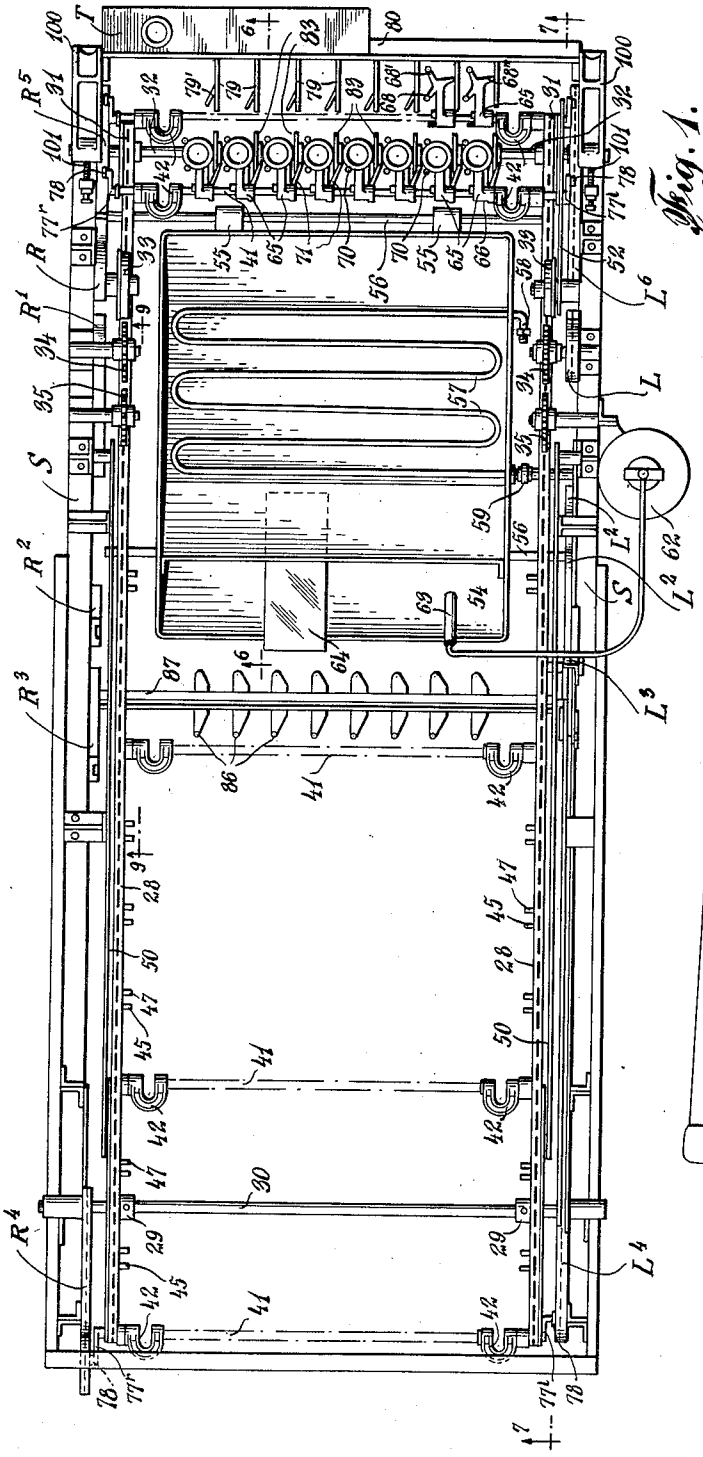


Fig. 1.

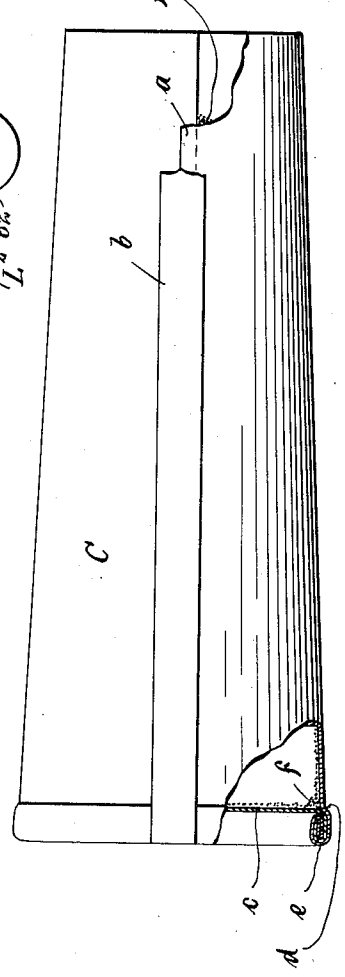


Fig. 12.

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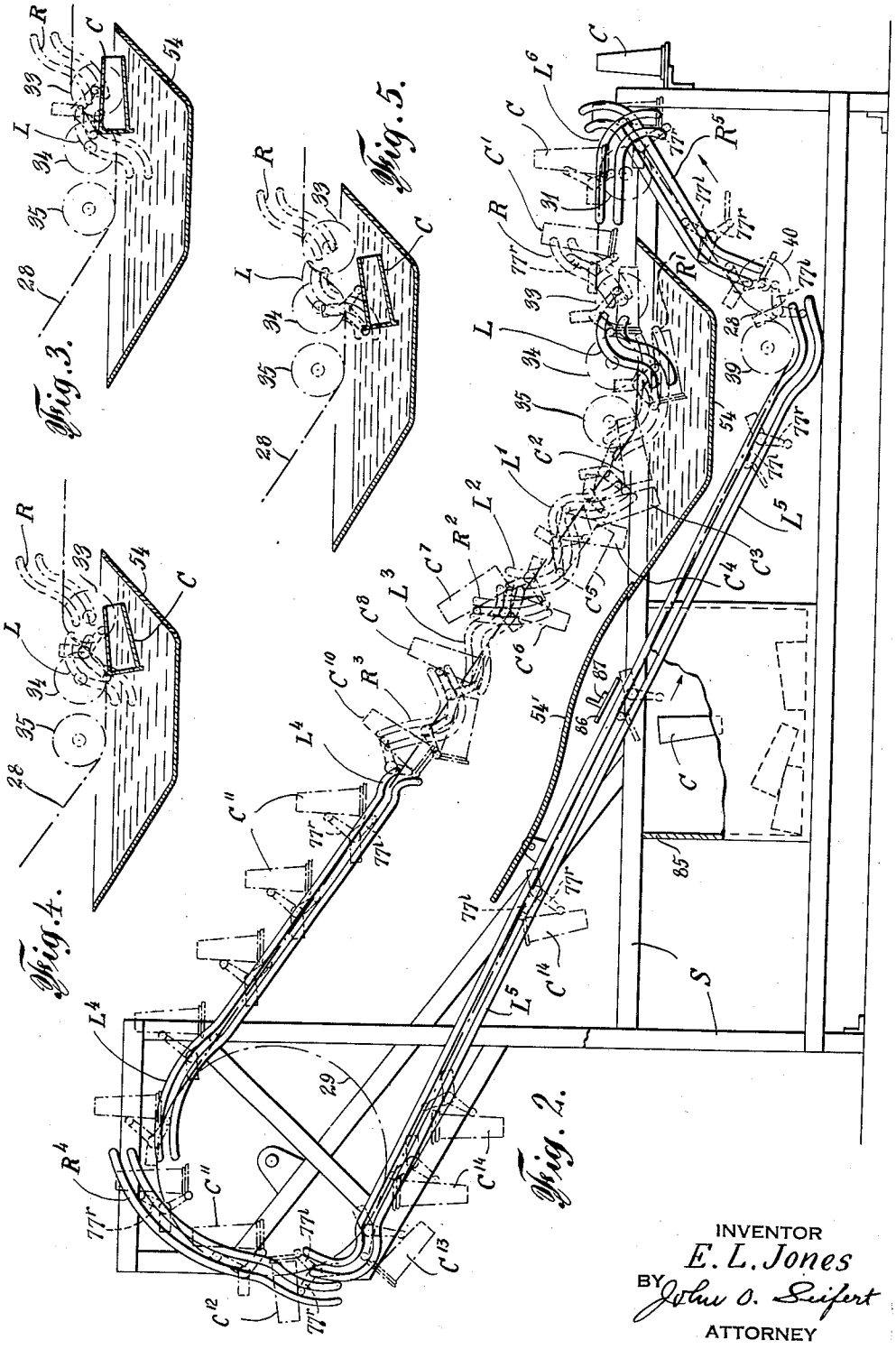


Fig. 3.

Fig. 5.

Fig. 4.

Fig. 2.

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METHOD OF PARAFFINING RECEPTACLES

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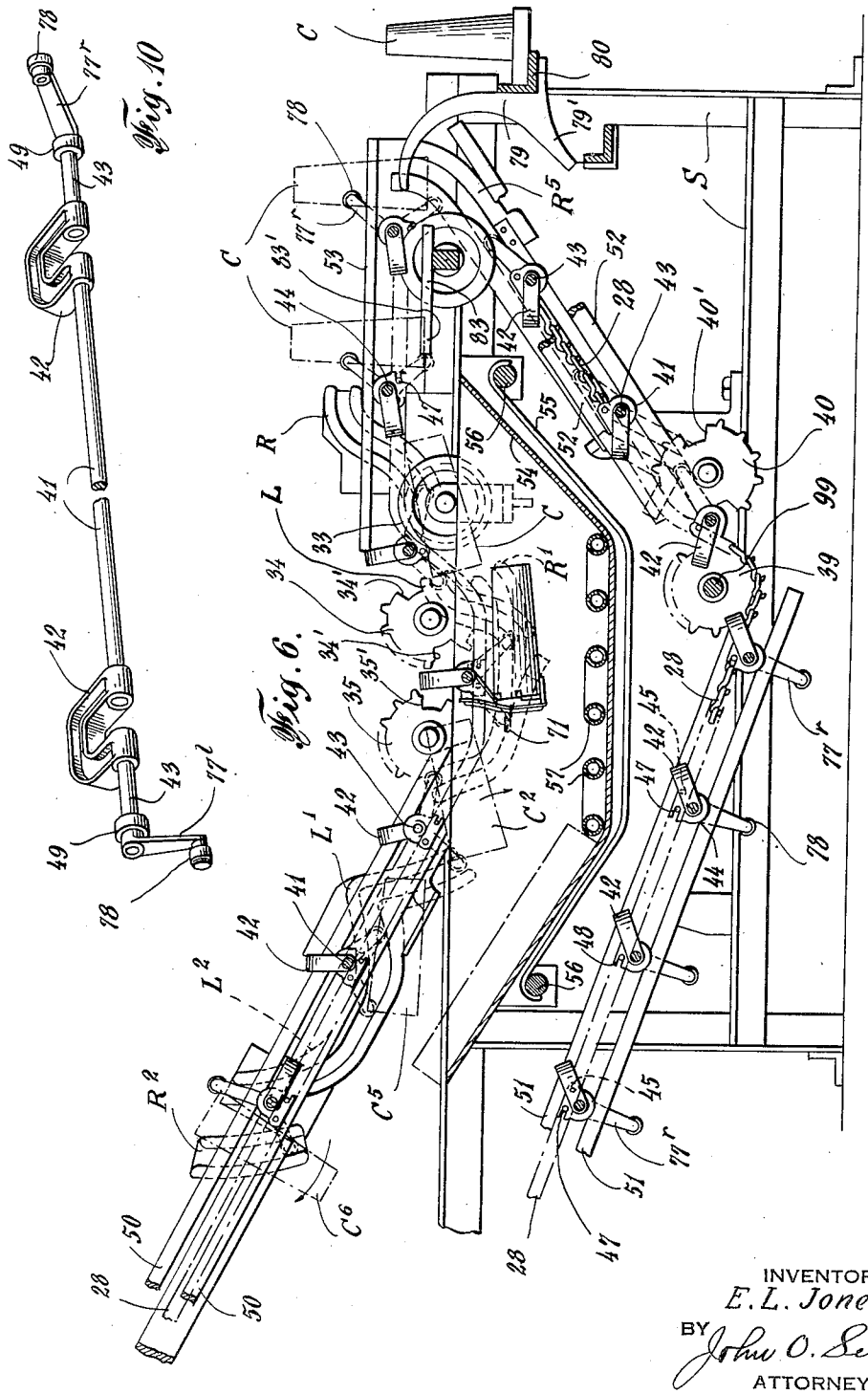


Fig. 10

Fig. 6.

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METHOD OF PARAFFINING RECEPTACLES

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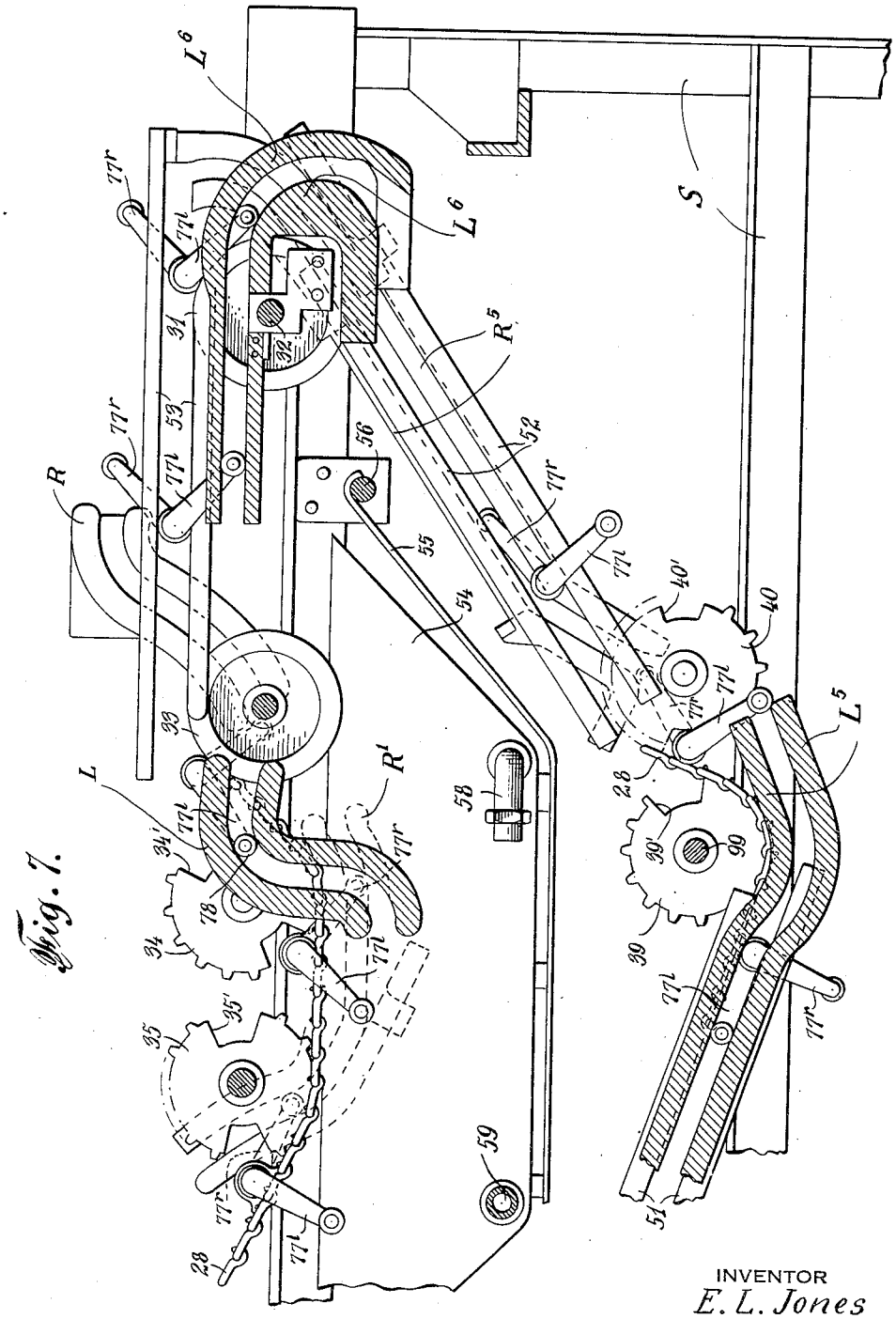


Fig. 1.

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METHOD OF PARAFFINING RECEPTACLES

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Fig. 8.

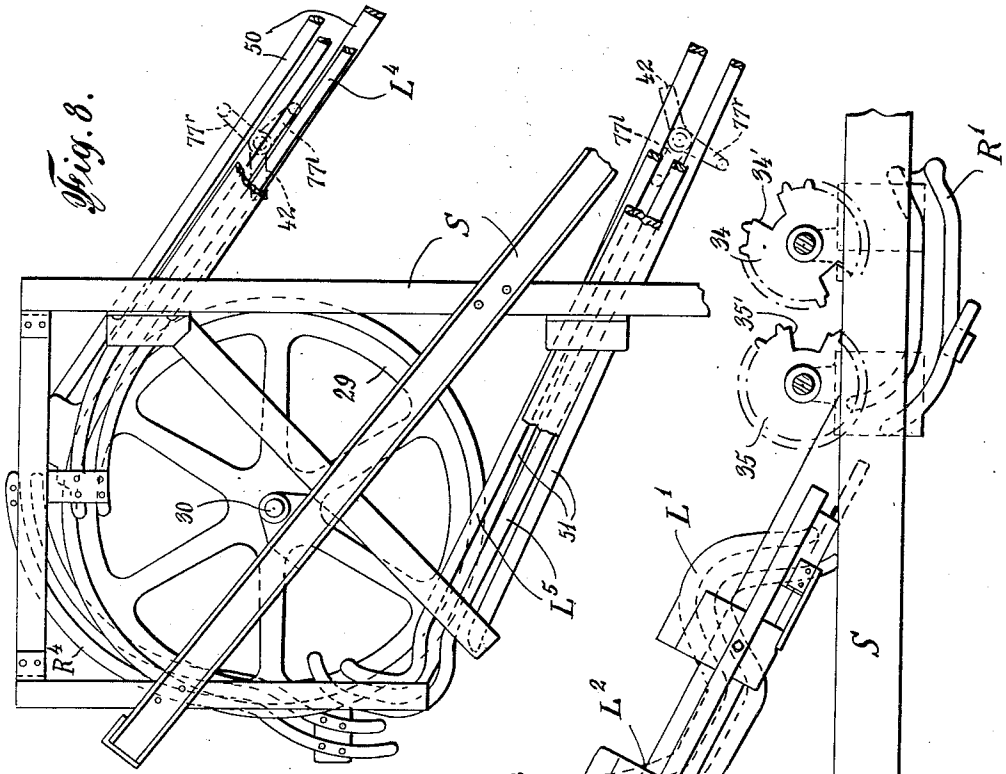


Fig. 9.

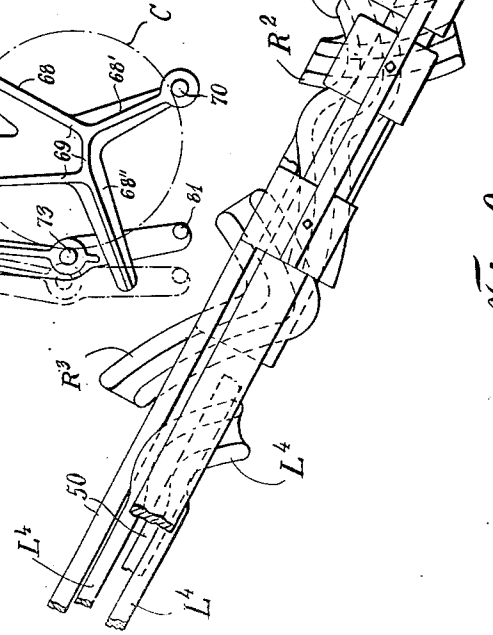
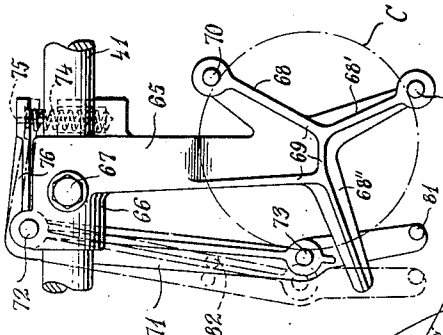


Fig. 11.



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UNITED STATES PATENT OFFICE

2,044,078

METHOD OF PARAFFINING RECEPTACLES

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Original application July 24, 1929, Serial No. 380,566. Divided and this application October 18, 1934, Serial No. 748,789

5 Claims. (Cl. 91—70)

This invention relates to receptacles and the method of making the same, and particularly to the making of paper receptacles adapted for the packaging of food commodities, as disclosed by Letters Patent No. 1,699,549, wherein the receptacle body is formed from a blank rolled to tubular form and secured at the longitudinal marginal portions forming a longitudinal side seam with one end, to constitute the bottom of the receptacle, closed by a disk secured in the end of the body by crimping or interlocking the end portion of the receptacle body with the marginal portion of the disk and forming a securing seam between said disk and body, and an open end adapted to be folded together to close the same, and it is the principal object of the invention to provide an improved method of treating receptacles with a coating substance adapted to be fused when heated and solidify at normal atmospheric temperature, such as paraffin, to render the receptacles moisture and leak-proof, the present application being a division of my application Serial No. 380,566.

Receptacles of this character are of considerable depth relative to the cross sectional area, and in the methods heretofore employed great difficulty has been experienced in applying the coating substance without the creation of air bubbles, particularly on the inner surface of the receptacles, which air bubbles in the handling of the receptacles are broken with the result there are spots on the wall of receptacles which are not covered with the coating substance and when liquid is filled into the receptacles and comes in contact with such uncoated spots the material of the receptacles absorbs the liquid, not only causing a rupture of leakage of the receptacles but a possible contamination of the contents of the receptacles.

It is the object of the present invention to provide an improved method of treating receptacles of this character with a coating substance to prevent the creation of air bubbles on the walls of the receptacles and assures the impregnating of the material of the receptacles with the coating substance and applying of an even film of the coating substance on the receptacle wall, and also provide a coating of increased thickness or a fillet of the coating substance at the crevices formed by the side and bottom seams to prevent the seepage of the liquid contents of the receptacles to said seams and leakage of the receptacles.

In carrying out the invention there is provided a paraffine bath consisting of a trough carrying the paraffine arranged with means to fuse and maintain the paraffine at a predetermined consistency. The receptacles are releasably supported by holders on a carrier constituting a part of a continuous traveling conveyor and as the receptacles travel relative to the paraffine bath they are entered therein with the bottom foremost and the mouth inclining upward slightly to the horizontal whereby the paraffine entering the receptacle functions to expel all of the air from the receptacle and preventing the pocketing of air in the receptacle as it is immersed in the bath, the receptacle being moved through and out of the bath in said position and as it is moved out of the bath draining the greater portion of the paraffine therefrom and permitting the entrance of air into and displace the paraffine drained from the receptacle. As the receptacle is moved out of the paraffine bath it is positioned with the mouth lowermost and engaged in the paraffine bath trapping a portion of the air therein and in such condition withdrawn from the paraffine bath, the withdrawing of the receptacle from the bath and draining of the liquid from the receptacle in such position creating a vacuum therein and a consequent breaking of any bubbles which may have been created and adhered to the inner surface of the receptacle. After the receptacles have been withdrawn from the paraffine bath, they are manipulated to effect an even coating of the inner and outer surfaces of the receptacles and to drain the surplus paraffine to the side and bottom seams of the receptacles to build up a coating of increased thickness or fillets at said seams.

In the drawings accompanying and forming a part of this application, Figure 1 is a plan view of apparatus for carrying out the method with a forward portion broken away and only a part of the carriers for the receptacle holders of the conveyor shown.

Figure 2 is a side elevation and showing in a diagrammatic manner successive positions the receptacle assumes by the adjustment of the carrier for the receptacle holder during the travel of the conveyor.

Figures 3, 4, and 5 are side elevations showing in a diagrammatic manner the successive positions the receptacles assume as they are immersed in the paraffine bath in the trough.

Figure 6 is a sectional view of the right hand end portion of the machine as viewed in and taken substantially on the line 6—6 of Figure 1 looking in the direction of the arrows.

Figure 7 is a longitudinal sectional view taken

substantially on the line 7—7 of Figure 1 looking in the direction of the arrows.

Figure 8 is a side elevation of the rear portion of the apparatus looking at the bottom of Figure 1.

Figure 9 is a side elevation taken substantially on the line 9—9 of Figure 1 looking in the direction of the arrows to show the arrangement of cams in the plane of travel of the conveyor to adjust the carriers for the receptacle holders and variably position the receptacles during the travel of the conveyor.

Figure 10 is a perspective view of a carrier for receptacle holders and showing the means connected thereto for guiding the conveyor chains and supporting said carriers and for adjusting the carriers to variably position the receptacles during the travel of the conveyor.

Figure 11 is a plan view showing the mounting of receptacle holders on the carriers therefor of the conveying mechanism; and

Figure 12 is an elevational view, partly broken away and partly in section, of a receptacle to be paraffined by the method of the present application.

In the embodiment of the apparatus illustrated for carrying out the method the operative parts are mounted upon a supporting structure, (designated in a general way at S,) comprising parallelly arranged sides connected by cross members.

The receptacles are transported by a travelling conveyor mechanism comprising a pair of endless chains 28 supported to travel in juxtaposed relation to the sides of the supporting structure, said chains passing around sprocket wheels 29 fixed to a shaft 30 rotatably mounted on an elevated portion at the rear end of the supporting structure and around sprocket wheels 31 fixed to a shaft 32 rotatably mounted on the opposite or forward end of the supporting structure and in a lower plane than the sprocket wheel carrying shaft 30. The upper stretch of the conveyor chains in their travel from the sprocket wheels 31 are guided over peripherally flanged wheels 33 to below a pair of sprocket wheels 34, 35, and the lower stretches in their travel from the sprocket wheels 29 to the sprocket wheels 31 pass below and over sprocket wheels 39, 40, (Figures 2, 6, and 7,) the sprocket wheels 34, 35 and 39, 40 being fixed to stub shafts whereby they are rotatably mounted upon the sides of the supporting structure.

Carriers for receptacle holders are connected to the chains, said carriers comprising bars or shafts 41 (Figure 10) fixed at the opposite ends in one leg of yoke members 42 with stub shafts 43 fixed in the other leg of the yoke members to extend co-axially of the bar 41. These carriers are rotatably mounted on the chains in predetermined spaced relation by mounting brackets 44 (Figure 6) having a bore for the loose engagement of the stub shafts 43 of the carriers, the carrier supporting brackets being mounted on the chains by pins 45 fixed in and extending laterally from a chain link and loosely engaged in a bore in the brackets 44, the brackets being held against rotation on the chain pins 45 by pins 47 fixed in and extending laterally from links of the chains successive to the links in which the pins 45 are mounted and engage a recess 48 in the carrier mounting brackets 44. The upper stretch of the conveyor chains in their travel from the sprocket wheels 35 to the sprocket wheels 29 are supported and guided by rollers 49 on the holder carriers engaging between parallelly arranged guide rails 50 (Figures 6 and 9). The lower stretch of the chains are supported and guided in their travel from the sprocket wheels 29 to the sprocket wheels 39 between rails 51, (Figure 7,) and over the sprocket wheels 40 to the sprocket wheels 31 between rails 52, the chains being supported and guided in their travel from said latter wheels 31 to the wheels 33 between rails 53. By this arrangement the upper stretches of the conveyor chains are caused to enter and travel for a predetermined length of conveyor travel through a trough or pan 54 suspended by carriers 55 from transverse bars 56 mounted upon the supporting structure to extend between the conveyor chains and in a plane below the upper stretch thereof.

The trough 54 is adapted for the carrying of paraffine, which is fused therein and maintained in a melted condition by suitable means, in the present instance comprising a steam coil 57 having an inlet 58 and outlet 59 for connection in circulation with a source of steam supply, and controlled by a suitable valve. To maintain the paraffine in the trough at a predetermined consistency means are provided to automatically control the valve 6 and thereby regulate the heat supply, comprising thermostatically actuated valve operating means, illustrated in a conventional manner at 62, which is controlled and regulated by the temperature of the paraffine by means of a temperature responsive element 63 engaged in the paraffine in the trough and having connection with the thermostatically actuated valve operating means 62 (Figure 1). To provide a constant supply of the paraffine to the trough the rear end of the trough is arranged with a shelf inclined rearwardly and upwardly upon which a cake or cakes 64 of the paraffine are placed partially engaged in the fused paraffine in the trough, as shown in full lines in Figure 1 and in dot and dash lines in Figure 6.

Holders for releasably supporting receptacles C, an embodiment of which receptacle is shown in Figure 12, are mounted upon the carrier bars 41 in equidistantly spaced relation, there being eight of the holders mounted upon each of the carrier bars in the present instance. The receptacle holders comprise members or arms 65 having a sleeve portion 66 at one end whereby they are engaged upon the carrier bars to extend laterally therefrom and secured thereon by set screws 67, fingers 68, 68', 68'' projecting laterally from the arms 65 in the form of a spider, and ribs 69 extending from one face of said arm and fingers for engagement of marginal portions of the bottom of the receptacle. The receptacles are positioned upon the arms by pins 70 fixed in and extending upward from the fingers 68, 68' engaging marginal portions about the bottom end of the receptacle and are releasably retained thereon by gripping means yieldingly engaged with a marginal portion at the bottom end of the receptacle opposed to and intermediate the pins 70, this gripping means comprising an arm in the form of a lever 71 pivotally supported, as at 72, upon the sleeve portion 66 of the arms 65 to have movement in a direction transversely of and urged in a direction toward the arm 68 to engage a pin 73 fixed in and extending up from said arm intermediate the ends thereof with the receptacle positioned on the arm 65 relative to pins 70 and clamping the receptacle between the pins 70, 73 by a spring 74 seated at one end in a recess in a leg extended laterally from the arm sleeve 66 with a pin 75 fixed in and extending angularly from an arm 76 of the lever 71.

To adjust the carrier bars 41 with the receptacle holders thereon during the travel of the conveyor and variably position the receptacles carried by the holder arms, which are in the nature of crank arms, are fixed to the ends of the stub shafts 43, the arm at the right hand end of the carrier being indicated by 77r and the arm at the left hand end thereof by 77l, said arms carrying laterally extended pins at the ends with rollers mounted thereon, as at 78, for engagement of guiding cam members mounted on the right hand and left hand sides of the supporting structure in the plane of travel of the conveyor chains.

The receptacles are placed upon the holders at the front end of the machine, the right hand end as viewed in Figure 1, the receptacles being placed by an attendant on a table T at said end of the machine from which table they are picked up by the operator and placed upon the receptacle supports 65 as the conveyor chains are advanced around the sprocket wheels 31. To permit positioning the receptacles on the arms or plates 65 of the holders, it is necessary that the lever arms 71 be positioned laterally of said supporting arms 65. To adjust the lever arms 71 laterally during the travel of the conveyor and retain them in such position to permit of engaging receptacles on the arms 65 gauged relative to the pins 70, cams, in the form of plates 79, are mounted on a transverse member 80 fixed to the sides of the supporting structure to extend in a plane below the sprocket wheel carrying shaft 32, these cams being equal in number to the holders on a carrier and spaced apart distances corresponding to the spacing of the holders on the carriers. These cams have an angular portion 79' extending downward from the support 80 to intersect the path of travel of and for engagement by pins 81 extended upward from the holder arms 71 (Figure 11), and as said pins ride up said inclined cam portions the holder arms 71 are moved laterally of the holder arms 65, as shown in dotted lines in Figure 11, against the tension of the springs 74. The upper portion of the cam plates 79 are of arcuate shape and extended laterally of the support 80 in the direction of travel of the conveyor, and as the pins ride upon the inclined portions 79' and onto said arcuate portions the latter are engaged by the sides of the holder arms 71 and positioned as shown in dotted lines in Figure 11, and as said holder arms ride off from said arcuate cam portions pins 82 extended downward from intermediate the ends of the holder arms 71 engage a portion of cam plates 83 (Figures 1 and 6) extending in the plane of the arcuate portions of cam plates 79, said cam plates being mounted upon a transverse member 84 of the supporting structure. The operator places the receptacles on the holders during that portion of the travel of the conveyor when the holder arms ride along the arcuate portion of cam plates 79 and plates 83. The ends 83' of the cam plates 83 extend in the direction of travel of the conveyor and are inclined laterally to the right and as the pins 82 ride along said inclined portion they are moved through the action of the springs 74 toward the holder arms 65 to engage the holder pins 73 with receptacles on the holder arms 65 and clamp the receptacles between said pins 73 and the pins 70, the receptacles C being in the upright position shown in dotted lines in Figure 6. With the receptacles in this position, the conveyor chains are guided by rails 53 to the guide wheels 33 and from said latter wheels to sprocket wheels 34, 35, said wheels having diametrically opposite cut away portions 34', 35' to clear the holder carriers. As the holder carriers approach the guide wheels 33 the roller carrier arm 77r engages between cam rails R effecting a rotation of the holder carriers and thereby moving the receptacles C in an orbit in the plane of the axis of the receptacles and in a direction forward of the machine or opposite to the direction of travel of the conveyor, as shown at C1 in Figure 2. As the roller of carrier arm 77r rides from between the cam rails R the receptacles assume a substantially horizontal position with the bottom foremost and the receptacles about to be entered into the paraffine in the trough 54 when the roller carrying arm 77l will engage between cam rails L, as shown in Figure 3. As the roller of arm 77l rides between cam rails L the receptacles will be positioned with the mouth or open end inclined slightly upward from the horizontal, as shown in Figures 2 and 4, and maintained in such position until they are immersed in the paraffine, as shown in Figure 5. It will be noted that the receptacles are entered into the paraffine trough with the receptacle bottom forward or in the direction of travel of the conveyor, and by the immersing of the receptacles with the mouth inclined slightly upward to the horizontal there will be a gradual flow of the paraffine into the receptacles and the expelling of all of the air from the receptacles with no possibility of trapping air in the receptacles assuring contact of the paraffine with the entire inner surface of the receptacles without the creating and adhering of air bubbles to the surface of the receptacles.

During the travel of the roller on carrier arm 77l from between cam rails L, the roller on carrier arm 77r engages between cam rails R1 thereby maintaining the receptacles in a substantially horizontal position during a predetermined length of conveyor travel with the receptacles immersed in the paraffine, the greater portion of the cam rails R1 (Figures 2, 6, and 7) being in a substantially horizontal plane with the rear ends curved upwardly, said ends being arranged adjacent the sprocket wheels 35 and as the conveyor chains pass around said sprocket wheels the receptacles are being withdrawn from the paraffine, and by the curvature of the ends of the cam rails R1 the carriers are adjusted to position the receptacles with the mouth inclined slightly upward to the horizontal, as shown at C2 in Figure 17, permitting the greater portion of the paraffine to drain from the receptacles and entrance of air thereto. During the continued travel of the conveyor the roller on carrier arm 77r passes from between cam rails R1 and the roller of carrier arm 77l engages between cam rails L1 imparting a quick rotative movement to the holder carriers and moving the receptacles in the direction indicated by the arrow to inverted position C3 with the mouth of the receptacles engaged or immersed in the paraffine and thereby pocketing the air entered into the receptacles in the receptacles in the C2 position. During the continued movement of the carrier relative to the cam rails L1 said rails are arranged to maintain the receptacles in inverted position but slightly inclined to the vertical, as shown at C4, permitting the draining of the paraffine from the receptacles and which will create a partial vacuum in the receptacles and the breaking of any air bubbles on the inner wall of the receptacles, which experience has shown

is possible since the paraffine is in the nature of a mobile body, with the result that a part or parts of the inner wall of the receptacles will have an insufficient coating of the paraffine and permit the material of the receptacles to absorb the liquid contents of the receptacles and possible rupture of the receptacles and contaminating of the contents of the receptacles.

The receptacles, as shown in Figure 12, are constructed from a blank rolled to tubular form with the longitudinal marginal portions in overlapped relation, as at *a*, and secured by a strip *b* adhesively applied over said lapped portions, the one end of the receptacle body being closed by a flanged disk *c* engaged in one end thereof and seated against a shoulder *d*, the closure disk being secured in the receptacle body by interfolding inwardly the contiguous marginal portions of the receptacle and disk flange into interlocking relation, as at *e*. The receptacles when they are placed on the receptacle holders are positioned with the sealing strip *b* rearwardly of the direction of travel of the conveyor or opposite the operator.

As the conveyor continues to travel relative to the cam rail L1, the holder carriers are adjusted to position the receptacles as shown at C5, in which position the side sealing strip *b* of the receptacles is lowermost and effecting a flow of the paraffine from one side to the side seam and longitudinally outward from the receptacle and a simultaneous flow across the bottom, thus assuring a coating of increased thickness or a fillet at the longitudinal seam and the creases in the joint between the body and receptacle closure which is lowermost in such position of the receptacles, as shown in a diagrammatic manner by stippling at *f* in Figure 12. The cam rails L1 have an upwardly curved portion L2 at the ends and as the roller carrier arm 77*l* moves relative to said portion of said cam rails the holder carriers are adjusted to position the receptacles as shown at C6, and as the roller on carrier arm 77*l* rides from between the cam rail portions L2 the roller of carrier arm 77*r* engages between cam rails R2 imparting a quick movement to the holder carriers and the receptacles in an orbit in the plane of the axis of the receptacles to position the receptacles upright and inclining to the vertical, as at C7, effecting a flow of the paraffine from the opposite side and into the receptacles as well as across the bottom. As roller of carrier arm 77*r* moves from between the cam rails R2 the roller on carrier arm 77*l* engages between cam rails L3 adjusting the holder carriers to position the receptacles in substantially upright vertical position C8 when the roller on carrier arm 77*l* passes from between cam rails L3 and roller on carrier 77*r* engages between cam rails R2 adjusting the holder carrier to position the receptacles as shown at C9 and C10, effecting a flow of the paraffine to the side seam and along the side seam to the bottom seam. As the roller on carrier arm 77*r* passes from between cam rails R3 the roller on carrier arm 77*l* passes between cam rails L4 moving the receptacles to upright position C11 and effecting a draining of the paraffine to the bottom of the receptacles. The receptacles are maintained in this latter position during the congealing of the paraffine and until the conveyor chains pass around the sprocket wheels 29 when the roller on carrier arm 77*l* passes from between the cam rails L4 and roller on carrier arm 77*r* engages between cam rails R4 and still maintain the receptacles in the C11 position. As the conveyor chains pass around the sprocket wheels 29 and at the commencement of travel of the lower stretch of the chains the roller on carrier arm 77*r* passes from between cam rails R4 and roller on carrier arm 77*l* engages between cam rails L5 successively moving the receptacles to the positions C12, C13 and C14, the receptacles being inverted in the latter position and in which position the movable members 71 of the holders are actuated to release the receptacles and permit them to drop into a receiving receptacle 85 positioned below the lower conveyor stretch, or they may be dropped onto a chute for delivery to receptacle filling apparatus. A drain or catch board 54' for paraffine dripping from the receptacles is positioned relative to the cam rails L2 to L4 and R2 and R3.

To actuate the movable or gripping member 71 of the receptacle holders to release the receptacles from the holders a series of cams 86 are fixed upon a bar 87 extending transversely of the supporting structure above the lower stretch of the conveyor chain, as shown in Figure 2. The receptacle holders during the travel along the lower conveyor stretch are in inverted position. The cam members 86 are in the form of plates having inclined edges at the opposite ends with an intermediate high portion and as the holders approach said cams the pin 82 extended from the movable holder member 71 engages with and rides up the high portion of said cam members moving said holder members laterally of the fixed holder members 65 against the tension of the springs 74.

As the conveyor chains pass around the sprocket wheels 39 the roller on carrier arm 77*l* passes from between the cam rails L5 and the roller on carrier arm 77*r* engages between cam rails R5 adjusting the holder carriers to position the holders with the receptacle engaging portion uppermost, the conveyor chains during this portion of the travel thereof being guided and supported by the guide rollers 49 on the holder carriers engaging between the guide rails 52. As the conveyor chains pass around sprocket wheels 31 the roller on carrier arm 77*r* passes from between cam rails R5 and roller on carrier arm 77*l* engages between cam rails L6, said cam rails having a curved portion and a portion extending horizontally and parallelly to the supporting and guiding rails 53 and maintaining the holders during this portion of the travel of the conveyor with the receptacle engaging portion uppermost in a substantially horizontal plane with the movable holder members 71 moved and maintained laterally of the fixed holder members 65 by the engagement of said holder members 71 with the cam plates 79, 83 as hereinbefore described. The sprocket wheels 39 and 40 have diametrically opposite cut out portions 39', 40' similar to the sprocket wheels 34, 35 for the passage of the holder carrier bars 41. The shaft 99 on which the sprocket wheels 39 are fixed is the drive shaft which is operatively connected to and driven from a suitable source of power. As the holder carrying bars 41 move relative to the paraffine bath by the travel of the conveyor chains and as they are guided to engage the holders on the bars in the paraffine bath, the opposite sides of the tank 54 is engaged within the yoke members 42 of the holder carriers.

By the means and mode of operation thereof as hereinbefore described the receptacle is placed in upright position on the receptacle support, as shown at C in Figure 2. The receptacle is then moved in the plane of its axis in a direction op-

posite to the travel of the receptacle, as shown at C1, and this adjustment is continued during the travel of the receptacle to the paraffine bath until it assumes a substantially horizontal position with the bottom foremost or in the direction of travel of the receptacle when about to be entered into the bath, as shown in Figure 3, and as it is entered into the bath it is positioned with the mouth of the receptacle tilted upward slightly to the horizontal, as shown in Figure 4, whereby the flow of the paraffine into the receptacle expels the air from the receptacle, and as the receptacle is immersed in the paraffine bath there will be no air pocketed in the receptacle with the result that there will be no tendency of the creation and the adhering of air bubbles to either the interior or exterior surfaces of the receptacle. Furthermore, the side seam of the receptacle is lowermost, as hereinbefore set forth, with the result that the side seam portion of the receptacle will be subjected to the action of the paraffine for a longer period of time than the portion of the receptacle opposite the seam and thus assuring the impregnating of the lapped portion and side sealing strip of the receptacle. The receptacle is maintained in said position in its passage through the paraffine bath and until the conveyor chains pass above the sprocket wheels 35 when the receptacle is moved out of the paraffine bath in substantially the same position, as shown at C2 in Figure 2, and as it moves out of the paraffine bath the major portion of the paraffine is drained from the receptacle outward along the side seam and permitting of the entrance of air into the receptacle. The receptacle is then moved by a quick movement in the direction of the arrow to inverted position with the receptacle mouth engaged in the paraffine trapping the air in the receptacle, as shown at C3, and said movement is continued until the receptacle is in the C4 position tilted slightly to the vertical and causing the paraffine to flow across the side reversely to the seam. Intermediate the positions C3 and C4, with the receptacle substantially in inverted vertical position, the receptacle mouth is withdrawn from the paraffine, and such withdrawing of the paraffine causes the creation of a vacuum, or a partial vacuum, in the receptacle which tends to rupture any bubbles which may have been created and adhered to the inner surface of the receptacle. From the position C4 the receptacle is moved to the position C5 with the side seam lowermost and the receptacle mouth tilted slightly downward from the horizontal, thus causing the paraffine to flow to the side seam and outward along said seam building up a fillet or barrier of paraffine at the side seam, the paraffine also flowing across the bottom and building up a paraffine fillet or barrier at the bottom seam at one side of the receptacle. From the C5 position the receptacle is adjusted to the C6 position to cause the draining of any surplus paraffine from the receptacle, and from which latter position C6 it is quickly moved to position C7 causing the paraffine to flow reversely of the side and across the bottom and into the receptacle to build up a paraffine fillet or barrier at the opposite side portion of the bottom of the receptacle. From the position C7 the receptacle is moved reversely to position C8 to cause the paraffine to flow to the bottom and reversely across the bottom, and then movement is continued until it assumes the position C9 to cause the flow of the paraffine toward the side seam, when it is moved to the position C10 to cause a flow of the paraffine into the receptacle along the side seam, and finally moved to position C11 to cause a flow of the paraffine to the bottom and the receptacle maintained in said position during the congealing of the paraffine. By this method the receptacles are provided with an even coating of paraffine free of air bubbles and assures the building up of a fillet or barrier of paraffine of considerable thickness at the side and bottom seams and assuring the liquid and moisture sealing of said seams.

Having thus described my invention I claim:

1. The method of coating receptacles having an elongated body with a closed end and an open end with material adapted to fuse when heated and solidify at normal atmospheric temperature, consisting in immersing a receptacle in a heated bath of the coating material to effect the expelling of the air from the receptacle and prevent the pocketing of air in the receptacle by the filling of the coating material into the receptacle as it is immersed in the bath, withdrawing the receptacle from the bath and simultaneously draining the major portion of the coating material from the receptacle, then inverting the open end of the receptacle in the bath and withdrawing the receptacle in said position from the bath to create a partial vacuum in the receptacle and rupture of bubbles adhering to the inner surface of the receptacle, and then manipulating the receptacle to effect reverse flow transversely and longitudinally of the receptacle and an even coating of the material on the surfaces thereof.

2. The method of coating receptacles having an elongated body with a closed end and an open end with material adapted to fuse when heated and solidify at normal atmospheric temperature, consisting in immersing a receptacle in a heated bath of the coating material with the mouth of the receptacle inclined slightly upward from the horizontal to effect the expelling of the air from and prevent the pocketing of air in the receptacle by the flow of the material into the receptacle as it is immersed in the bath, moving the receptacle out of the bath in said position to drain the major portion of the material therefrom and permit of the entrance of air into the receptacle, and then moving the receptacle with a portion of the material therein substantially to inverted vertical position and immersing the open end portion of the receptacle in the bath and withdrawing the mouth end of the receptacle in said position from the bath to create a partial vacuum in the receptacle by the draining of the final material from the receptacle and rupturing air bubbles adhering to the inner surface of the receptacle.

3. The method of paraffining paper receptacles having an elongated body and a bottom arranged with side and bottom securing means and an open end, consisting in immersing the receptacle in a heated and fused paraffine bath, then moving the receptacle out of the bath and successively positioning the receptacle to drain the surplus paraffine from the receptacle and during the solidifying of the paraffin effect a flow of the paraffine over the surfaces of the receptacle toward the side seam and across the bottom, then longitudinally of said seam outward from the receptacle, then reversely of the side and bottom of the receptacle, then longitudinally of the side seam of the receptacle toward the bottom to build up a fillet of the paraffin at the side and bottom seams, and then to and maintaining the receptacle in upright position during the period of final solidifying of the paraffine.

4. The method of paraffining paper receptacles including an elongated body and a bottom in one end having side and bottom securing seams, consisting in continuously moving the receptacle in a linear path and during said movement immersing the receptacle in a bath of heated paraffine with the bottom foremost and in position to effect an expelling of the air from the receptacle and prevent pocketing of air in the receptacle by the flow of the paraffine into the receptacle as it is immersed in the bath and moving the receptacle in said position out of the bath to drain the surplus paraffine from the receptacle, and then successively positioning the receptacle during the solidifying of the paraffine to effect a flow of the paraffine toward the side seam and across the bottom, then longitudinally of said seam successively outward from and into the receptacle to build up a fillet of paraffin of substantial width and thickness at the side seam.

5. The method of coating receptacles having an elongated body with a closed end and an open end with a material adapted to fuse when heated and solidify at normal atmospheric temperature, consisting in immersing the receptacle in a bath of the heated coating material to effect an expelling of air from and prevent pocketing of air in the receptacle by the filling of the material into the receptacle as it is immersed in the bath, withdrawing the receptacle from the bath and simultaneously draining the major portion of the coating material from the receptacle, and then inverting and immersing the open end portion of the receptacle in the bath and withdrawing the receptacle in said position from the bath to create a partial vacuum in the receptacle and rupture of air bubbles adhering to the inner surface of the receptacle.

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