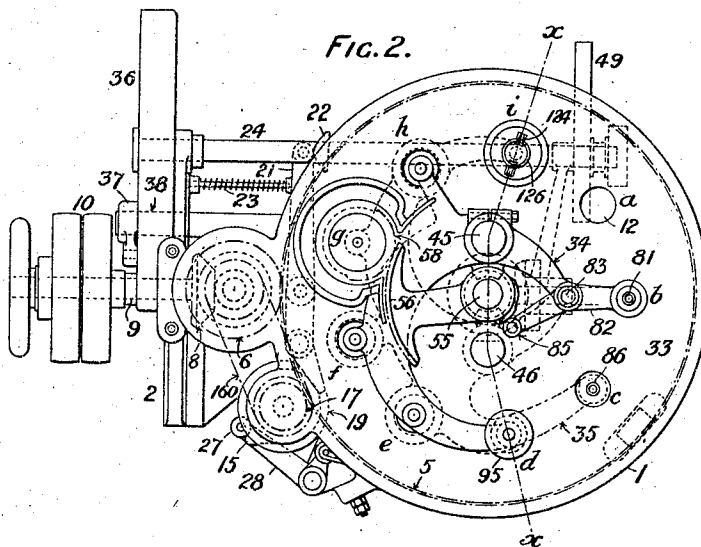
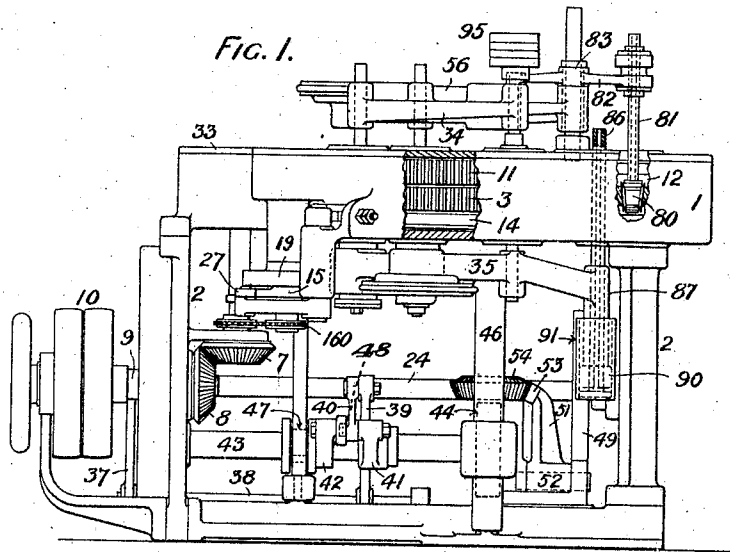


E. Z. TAYLOR.
 APPARATUS FOR THE MANUFACTURE OF PAPER VESSELS.
 APPLICATION FILED DEC. 27, 1909.

1,023,052.

Patented Apr. 9, 1912.

3 SHEETS—SHEET 1.



Witnesses
 C. Schallinger
 J. Rabnowitz

Inventor
 Elmer Zebbley Taylor
 by B. Singer
 Atty

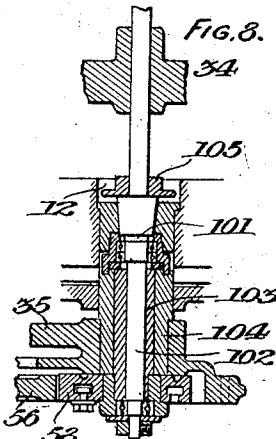
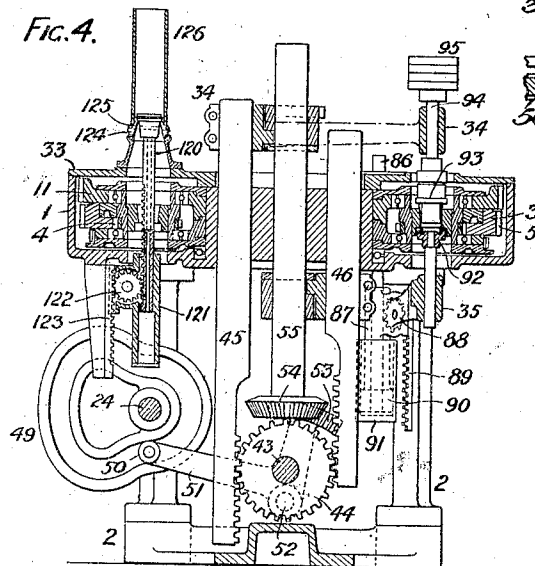
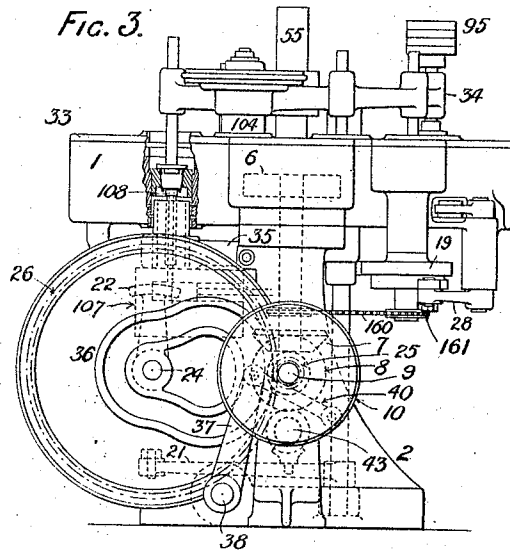
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3 SHEETS-SHEET 2.



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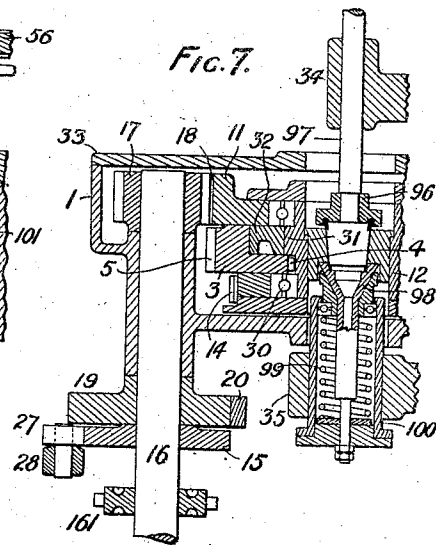
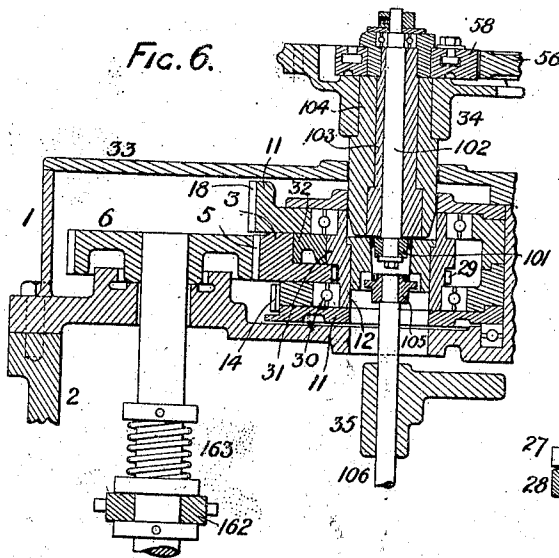
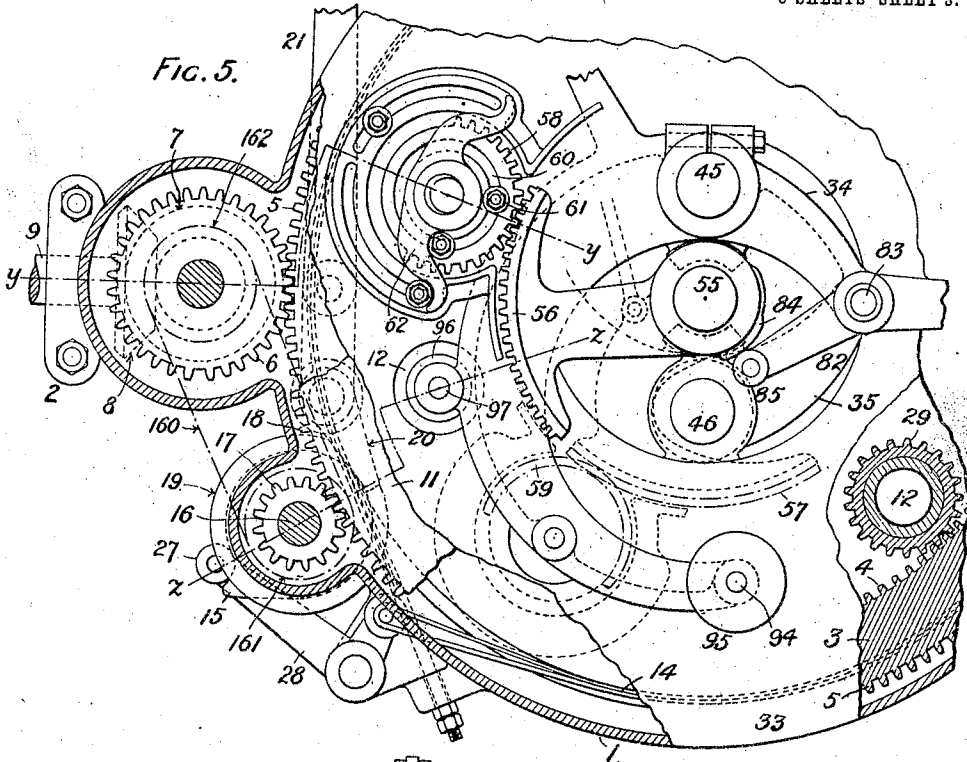
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UNITED STATES PATENT OFFICE.

ELMER ZEBLEY TAYLOR, OF LONDON, ENGLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AMERICAN MONO SERVICE COMPANY, OF ATLANTIC CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

APPARATUS FOR THE MANUFACTURE OF PAPER VESSELS.

1,023,052.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed December 27, 1909. Serial No. 535,045.

To all whom it may concern:

Be it known that I, ELMER ZEBLEY TAYLOR, a citizen of the United States, residing at 40, 41, and 42 Percival street, Goswell Road, in the city of London, England, engineer, have invented certain new and useful Improvements in Apparatus for the Manufacture of Paper Vessels, of which the following is a specification.

10 This invention relates to improvements in machines for the manufacture of paper vessels applicable for use in the delivery of milk or cream to customers and for other purposes, and has for its object to provide
15 an improved arrangement by means of which a series of operations can be carried out on such vessels in an economical and convenient manner at a high rate of speed.

The paper vessels for use in the manufacture of which the present machine is particularly designed are of conical form, tapering slightly from the top downward, and have a paper bottom secured therein by means of a downwardly turned flange on
25 the bottom piece. The machine may, however, also be used for the manufacture of cylindrical or parallel sided vessels.

In operation, paper tubes of the required dimensions, and the bottom pieces with the
30 downwardly turned flanges thereon are fed separately to the improved machine, which may then in a series of operations paste the upper and lower edges of the inside of the tube, place the bottom piece in position
35 therein and turn up the lower edge of the tube to inclose the downwardly extending flange of such bottom piece, roll out the lower edge of the partially completed vessel to firmly secure the bottom piece in position,
40 turn in the upper edge of the paper tube, roll out such upper edge to impart thereto the desired configuration (preferably including a groove to receive a flat disk or lid, a shoulder below such lid to prevent same
45 being inserted too far, and a shoulder on the exterior surface to prevent the vessels jamming when a number thereof are nested together), treat the lower outer part of the vessel with paraffin wax or other suitable
50 sterilizing and waterproofing material, and

finally deliver such vessel at a convenient point.

A suitable form of machine for carrying out these various operations is illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation; Fig. 2 is a plan view; and Fig. 3 an end elevation of such machine, parts of these three figures being shown in section. Fig. 4 is a vertical section on line *x—x*, Fig. 2; Fig. 5 is a plan view on an enlarged scale of part of the machine, partly in section; Fig. 6 is a vertical section on line *y, y*, Fig. 5; and Fig. 7 is a vertical section on line *z, z*, Fig. 5; Fig. 8 is a sectional view showing a suitable means
65 for rolling out the bottom edge of the receptacle.

In the arrangement shown a casing 1, of circular form, is mounted on a suitable framework 2, and a loose ring 3, provided
70 with both internal and external teeth 4 and 5, is disposed in such casing and driven by means of the external teeth 5 of ring 3, pinion 6 and bevel gearing 7 and 8, from main driving shaft 9, on which are fast and loose
75 pulleys 10.

Disposed over the ring 3 and in frictional contact therewith, so as to be capable of being driven thereby, is a circular plate or turret 11, in which a series of openings are
80 formed for the pockets 12, into which the vessels to be operated on are placed. These pockets 12 are in the operation of the machine to be moved step by step to bring the vessels contained therein into position to be
85 operated on by the different appliances hereinafter referred to, a suitable method of effecting this being to arrange turret 11 as above stated in frictional contact with the positively driven continuously rotating ring 3
90 so as to be driven thereby when free, and to apply a brake to bring such turret 11 to a stop at the required positions. To effect this stopping of the turret the means shown may be employed, consisting in a brake band 14
95 surrounding the lower part thereof and which is brought into operation by means of a cam 15 on a spindle 16, which latter also carries a pinion 17 meshing with teeth 18 formed on the periphery of the turret 11, 100

pinion 17 being of such size in relation to the turret that it will make one complete revolution while the turret is moving from one position to the next. A ratchet wheel 19 with a single notch is also mounted on spindle 16 and coöperates with a pawl 20 carried by the shaft of a lever 21 which is acted on by a cam 22 against the action of a spring 23.

Cam 22 is mounted on a shaft 24 which is continuously driven from main shaft 9 by means of pinion 25 and gear wheel 26, and operates to release pawl 20 from the notch in ratchet wheel 19, and as such pawl and notch constitute the means for definitely stopping the turret 11 at the end of each of its intermittent movements, it will be seen that when the pawl is released from the notch by lever 21 the turret will be able to continue its movement by reason of its frictional engagement with ring 3. As, however, such intermittent movement approaches its close the cam 15 acts on roller 27 of brake lever 28 and by forcing such roller and lever outward causes the brake 14 to be applied around turret 11, the movement of which will thus be gradually stopped until finally arrested by pawl 20 dropping into the notch of ratchet wheel 19. Immediately this takes place the roller 27 will fall over the highest part of the cam 15, taking off the brake, so that when the turret starts again it will be able to do so freely.

Instead of depending entirely upon the friction between ring 3 and turret 11 to rotate the latter as described, or as an alternative arrangement, the spindle 16 of pinion 17 may be connected with the spindle on which pinion 6 is mounted by means of a chain 160 and chain wheels 161 and 162, the latter of which is capable of being connected to its spindle by means of a friction clutch 163. The result of this arrangement is that when the turret is free to turn, the spring of clutch 163 will grip chain wheel 162 on its spindle and thus drive chain wheel 161 (and through the latter spindle 16 pinion 19 and turret 11) by means of chain 160, but when the turret is stopped the friction clutch will permit the spindle of pinion 162 to rotate without operating the latter.

As before stated, the ring 3 is continuously driven, this motion in addition to imparting the intermittent movement to turret 11 as described, also imparting (whenever the turret is either stationary or moving at a slower speed than ring 3) a rotary movement to the pockets 12 mounted in the holes in such turret, each of such pockets being for this purpose provided with teeth 29 engaging the internal teeth 4 of ring 3. Ball bearings 30 are preferably disposed around

each of the pockets so that they can rotate freely in relation to the turret in which they are mounted. Such pockets are also each formed with a collar 31 which by contact with a bearing ring 32 carried in ring 3 serve to retain the latter in its proper position in the casing 1. Such casing 1 is preferably provided with a cover 33 serving to prevent any part of the operators or their clothing coming in contact with the rotating parts mounted therein.

The various operations to be carried out on the vessels in course of manufacture are effected by mechanisms which must necessarily be disposed some above and some below the casing containing the rotating pockets in which such vessels are placed. It is therefore necessary to provide means for lowering or raising these mechanisms into their operative positions when required, and for this purpose same are mounted on a pair of spiders or frames 34, 35, the former carrying the apparatus which acts from above and the latter that from below the casing. These spiders may be operated in the following manner:—On the shaft 24 hereinbefore referred to and which receives motion from driving shaft 9 by means of gearing 25, 26, is mounted a cam 36 which operates a lever 37 secured to shaft 38 to which another lever 39 is also secured. Lever 39 by means of connecting link 40 and levers 41, 42, rocks a shaft 43 on which is a rack wheel 44 gearing with teeth formed on spindles 45, 46, on which the spiders 34, 35, are respectively mounted, the rotation of such rack wheel causing spindle 45 to move downward and spindle 46 to move upward carrying the spindles with them, and thus bringing the mechanisms carried by the latter to their operative positions with respect to the vessels in course of manufacture. To insure that the spiders can only be operated when the pockets 12 containing the vessels are in their proper positions, the two levers 41 and 42 are employed, the boss of the former being loose on shaft 43 while the boss of the latter is keyed to but capable of sliding on such shaft. Its sliding movement is effected by a fork carried by lever 21, which enters a groove 47 in the boss or hub of lever 42 and so transmits the movement of such lever 21 to the hub of lever 42.

The connecting link 40 between lever 39 and levers 41 and 42 has a projection 48 which is capable of entering a recess in the outer end of lever 42 when the latter is shifted along shaft 43 toward lever 41, and therefore in effect keys lever 41 also to the shaft, so that when in this position the rocking movement will be imparted (by means of the levers 41 and 42 from lever 39, shaft 38, lever 37 and cam 36) to the shaft 43 on which rack wheel 44 is mounted. As, how-

ever, lever 21 is, when not acted on by cam 22, kept out of its normal position by the pawl 20 on its shaft being engaged with the concentric portion of the periphery of ratchet wheel 19 until such pawl enters the single notch in the latter when the parts are in position for the spiders to operate, it follows that projection 48 cannot engage lever 42 until such pawl enters such notch, and that therefore the spiders can only be operated when this takes place and so permits lever 21 to return to its normal position and by so doing to slide lever 42 along shaft 43 until projection 48 engages with the recess in such lever, when the rocking movement will be imparted to shaft 43 and the spiders operated.

As hereinbefore stated, the machine illustrated in the drawings is designed to carry out a series of operations on the vessel in course of formation, but while suitable arrangements of mechanism for this purpose are illustrated, it is to be understood that the invention is not confined to such arrangements, nor does the special form of these mechanisms constitute an essential part of the present invention. It must also be understood that it is not desired to limit the scope of the invention to the employment of the essential features hereinafter described in connection with mechanisms for carrying out the special operations hereinafter described, as some of such operations may, in certain cases, be omitted, while in some cases it may be found desirable to carry out further operations not hereinafter referred to on the vessels.

The operations effected by a machine constructed as shown by the accompanying drawings, will now be briefly set out, the first of these being feeding the body of the vessel, which is effected at the point *a*, Fig. 2, and consists simply in the operator dropping a conical paper tube into the pocket 12 which at this moment is situated at this point. At the same time, the operator also places a bottom piece on the upper end of a tube which at this time will be projecting up from the casing at point *c*.

Pasting the inner top and bottom edges of the paper tube is effected at the point *b*, by means of a hollow paster 80 (Fig. 1) carried by the top spider 34 by means of a tube 81, which may be connected with a suitable paste reservoir. The paster descends centrally into the vessel, and when in position therein the arm 82 in which tube 81 is supported is turned slightly sidewise on pivot 83, by means of cam 84 (Fig. 5) coming in contact with roller 85, and the paster is thus brought into contact with the upper and lower edges of the vessel, the rotation of which causes the rotation of the paster in its support and so effects the past-

ing all around the vessel without undue friction thereon.

Feeding the bottom piece into the paper tube.—As above stated, the operator places the bottom pieces on the upper end of a tube at the point *c*, such tube being shown at 86 in Figs. 1 and 4, and being supported by the lower spider 35. As the movement imparted to the spider itself would not be sufficient to enable the upper end of the tube to project above the casing 1 when in its raised position, while when in the lowered position such upper end would be clear of the underside of the turret 11 to permit the latter to make its step by step movement the following means are employed to increase the length of movement of the tube: On the sleeve 87 carried by spider 35 a pinion 88 is mounted, same gearing with teeth formed on the adjacent side of tube 86 and also with a rack 89 mounted on the framework 2. As the sleeve 87 moves up or down, it will therefore be seen that pinion 88 will be rotated by its engagement with the stationary rack 89, and this rotation will by its engagement with the teeth formed on tube 86 cause the latter to move approximately twice as far as the sleeve 87, in which it is mounted.

To insure the bottom piece being conveyed to its proper position by means of the tube 86 it is preferred to cause a suction through the latter, and this may be effected by forming the lower end of sleeve 87 as a piston 90 working in a cylinder 91 secured to the lower end of tube 86 and so partaking of the extra movement imparted to the latter, so that as the cylinder moves more rapidly than the piston therein a suction will be caused through the tube 86, the interior of which is connected to the space below the piston, and the bottom piece will therefore be held firmly on the upper end of the tube, the suction however being broken by the contact of the bottom piece with the sides of the paper tube when it arrives at its proper position therein.

The turning in of the bottom edge of the paper tube to inclose the downwardly depending flange of the bottom piece is effected at the point *d*, the means employed for this purpose being shown in Fig. 4 and comprising a head 92 carried by the lower spider 35 and formed with a groove into which the lower end of the paper tube enters as the spider is raised. A head 93 mounted on a spindle 94 capable of sliding in the top spider 34 is so arranged that it comes into contact with the upper edge of the vessel before such top spider has completed its downward movement, such spindle 94 being acted upon by one or more weights 95, which enable it to resist the upward movement of the head 92 carried by lower spider 35. The

vessel is thus held down in the die contained in pocket 12 and therefore continues to rotate, and this rotary movement with its lower edge in the groove in the advancing but non-rotating head 92 coöperates with such advancing movement of the head to turn the lower edge of the vessel inward, which is completed on the completion of the movement of the spiders.

10 *Rolling out the bottom edge.*—After the bottom edge of the vessel has been thus turned in it is rolled out to shape the parts and cause them to adhere firmly together. This operation is carried out at the point *e*, Fig. 2, by mechanism such as that shown in Fig. 8, but as this mechanism is substantially similar to that used for rolling out the upper edge of the vessel, which will be hereinafter described, a detailed description thereof is unnecessary.

20 *Turning in the upper edge.*—The vessel then proceeds to the point *f*, Fig. 2, where the upper edge thereof is turned in. Mechanism for this purpose is shown in Fig. 7, and comprises a head 96 mounted on a rod 97 carried by the upper spider 34, such head being formed with a groove into which the upper edge of the vessel enters as the spider 34 is lowered. To enable the upper edge of the vessel to be turned in level with the upper surface of the die contained in pocket 12, a split conical head 98 surrounded by a ring acted upon by a spring 99 confined in a cylindrical sleeve 100 carried by the lower spider 35 comes in contact with the lower edge of the vessel before the lower spider has completed its movement, and lifts it slightly from the die. The continued movement of the spider brings the upper edge of the conical head 98 in contact with the lower surface of the die, and the consequent downward pressure of the conical surface of head 98 on the surrounding ring causes such head to grip the lower edge of the vessel; as such head 98 is in contact with the die the rotary motion of the latter will be communicated to the head and so to the vessel, this movement as in the case of the turning-in of the lower edge coöperating with the advancing but non-rotating movement of head 96 to effect the desired inward turning of the upper edge of the vessel.

50 *Rolling out the upper edge.*—The next operation to be effected is the rolling out of the turned in upper edge of the vessel to the desired configuration, which in the preferred form comprises a groove in the inner surface of the vessel to receive a lid, a shoulder immediately below such groove to prevent the lid being inserted too far, and a projection or enlargement on the outer surface to prevent the vessels jamming when a number are nested together. This operation is effected at the point *g*, Fig. 2, by means

of the arrangement shown in Fig. 6 and comprising a head 101 carried by a spindle 102 in a sleeve 103 which is mounted eccentrically in relation thereto in a sleeve 104 mounted in the upper spider 34. Normally the head 101 enters the upper end of the vessel in a central position with regard thereto, but means (hereinafter described) are provided for turning eccentric sleeve 103 in sleeve 104, which has the effect of bringing the head 101 into contact with one side of the vessel, when the rotation of the latter will rotate such head and these combined movements will insure that every portion of the upper edge of the vessel is acted upon and rolled to the desired form, the surface of head 101 and the coöperating surface of pocket 12 being (although not shown) of the necessary configuration for this purpose. During the operation a head 105 carried by a rod 106 mounted in the lower spider 35 retains the vessel in position by acting on the lower edge thereof.

Referring again to the rolling out of the lower edge of the vessel, it will be readily understood that, as shown in Fig. 8, mechanism similar to that just described may be employed, the operating head 101 being, however, in this case carried by the lower spider and the buffer head 105 by the upper spider.

95 *Waxing the lower part of the vessel.*—The lower part of the vessel is next to be treated with paraffin wax or other material for sterilizing same and rendering it waterproof, this operation taking place at the point *h*, Fig. 2, and being effected by the mechanism shown in Fig. 3. This mechanism comprises a pump 107 carried by the lower spider 35 and operated by means of a connecting rod pivoted to the sector 57 hereinafter referred to, the plunger of the pump being caused, as such sector moves in one direction, to force the wax or other material up through the head 108 (which may be formed of perforated metal and covered with felt or the like) into contact with the lower part of the vessel being operated upon, and on the return movement of such sector 57 to draw back into the pump any surplus of the coating material. The latter may be kept in a fluid state by means of Bunsen burners or other suitable heating appliances.

100 *Delivery.*—The various operations for effecting which the machine illustrated is designed having now been completed, the vessel is ready for delivery from the machine, such delivery taking place at the point *i*, Fig. 2. For this purpose a tube 120 capable of sliding in a sleeve 121 formed on the lower spider 35 is employed, as shown in Fig. 4, in combination with an arrangement similar to that hereinbefore described in connection with the feeding of the bottom

pieces to the machine, such arrangement in this case comprising a pinion 122 carried by spider 35 and gearing both with a fixed rack 123 and with teeth formed on the adjacent side of tube 120, the result of this arrangement being that such tube 120 will be caused to have the movement imparted to it by pinion 122 in addition to that of the spider 35. This movement is preferably employed as in the case of the feeding of the bottom pieces to produce a suction through tube 120, which when the upper end comes in contact with the bottom of the completed vessel will grip such vessel and lift it out of the pocket 12, this upward movement being continued until the vessel has passed between the upper ends of two inwardly inclined fingers 124 acted upon by springs 125, such fingers passing under the shoulder formed on the outer surface of the vessel at the completion of such upward movement and thus breaking the suction and preventing the vessel passing back when the tube 120 returns. A tube 126 is arranged to guide the vessels as they are delivered one by one to the fingers 124, and when a sufficient number have been accumulated and thus nested together they may be removed by hand.

The turning of the eccentric sleeve 103 of the top rolling mechanism, and also of the corresponding sleeve of the bottom rolling mechanism, is effected by the following means:—On shaft 24, on which gear wheel 26 and cam 36 are mounted, is also secured a cam 49 which by roller 50 operates bell crank lever 51 pivoted at 52, and the other end of which lever is formed with a beveled toothed sector 53, meshing with a bevel pinion 54 on central shaft 55, which by these means has a reciprocating rotary motion imparted to it. Toothed sectors 56, 57 are mounted on shaft 55 and are caused to move up and down with the spiders 34 and 35 and therefore to constantly remain in engagement with toothed wheels 58, 59, which are loosely mounted respectively on the eccentric spindles of the top rolling mechanism and the bottom rolling mechanism. In each of these toothed wheels is a concentric slot 60 (Fig. 5) and headed bolts 61 are arranged in such slots and can by being tightened up be secured in any desired positions therein. When the toothed wheel carrying the bolts 61 is actuated, such bolts come in contact with one or the other arm of a tumbler lever 62 keyed to the eccentric spindle, and it will thus be seen that by suitably adjusting the position of the bolts 61 in slot 60 the amount of rotary movement imparted to the eccentric sleeve and consequently the degree of eccentricity thereby imparted to the spindle carrying the operating head can be regulated as desired.

As shown in Fig. 5, the boss by which the

toothed sector 56 is mounted on shaft 55 carries the cam 84 which causes the arm 82 carrying the pasting mechanism to turn slightly into contact with the side of the receptacle to be pasted.

As above stated, the movement of toothed sector 57 is utilized to operate the pump 107 by which the waxing of the lower part of the vessel is effected, a connecting rod being pivoted to such sector and also to the piston rod or plunger of the pump.

What I claim as my invention, and desire to secure by Letters Patent, is:—

1. A machine for the making of paper receptacles comprising in combination, a plurality of structures having pockets for receiving the receptacles, means for rotating said pocket structures about their axes, means for feeding flanged bottom pieces into position relatively to said pockets, a crimping head for inwardly turning the lower edge of the receptacle to inclose the flange of the bottom piece, a head for rolling out such lower edge to the desired form, a second crimping head for inwardly turning the upper edge of the receptacle, a second rolling head for rolling out such upper edge to the desired form, and means for ejecting the completed receptacles from the pockets, substantially as and for the purpose specified.

2. A machine for making paper receptacles comprising in combination, a plurality of pocket structures having pockets and gear teeth, a loosely rotating ring provided with teeth meshing with the teeth of said pocket structures to rotate the same, a plunger for feeding flanged bottom pieces into position relatively to said pockets, a non-rotary crimping head for turning up the lower edge of the receptacle to inclose the flange of the bottom piece, a rotary rolling head for rolling out such lower edge to the desired form, a second non-rotary crimping head for turning the upper edge of the receptacle inwardly, a rotary rolling head for rolling out such upper edge to the desired form, and a reciprocating plunger for ejecting the completed receptacles out of said pockets.

3. A machine for making paper receptacles comprising in combination, a plurality of pocket structures having pockets and gear teeth, a turret carrying said pocket structures, means imparting a step by step movement to such turret, a loosely rotating ring having teeth meshing with the teeth of said pocket structures, a reciprocating plunger for feeding flanged bottom pieces into position relatively to said pockets, a non-rotary crimping head for turning inward the lower edge of the receptacle to inclose the flange of the bottom piece, a rotary rolling head for rolling out such lower

edge to the desired form, a non-rotating crimping head for turning in the upper edge of the receptacle, a rotary head for rolling out such upper edge to the desired form, and a plunger for ejecting the completed receptacles from said pockets.

4. A machine for making paper receptacles comprising in combination, a plurality of pocket structures having pockets for receiving the receptacles, means for rotating said pocket structures, means for feeding flanged bottom pieces into position relatively to said pockets, a crimping head for turning in the lower edge of the receptacle to inclose the flange of the bottom piece, a head for rolling out such lower edge to the desired form, a crimping head for turning in the upper edge of the receptacle, a head for rolling out such upper edge to the desired form, means for ejecting the completed receptacles from the pockets, means for intermittently rotating said pocket structures, spiders or frames for advancing said heads to operative positions, and means for raising and lowering such frames.

5. A machine for making paper receptacles comprising in combination, a plurality of pocket structures having pockets for receiving the receptacles, means for rotating said pocket structures, means for feeding flanged bottom pieces into position relatively to said pockets, a crimping head for turning in the lower edge of the receptacle to inclose the flange of the bottom piece, a head for rolling out such lower edge to the desired form, a crimping head for turning in the upper edge of the receptacle, a head for rolling out such upper edge to the desired form, means for ejecting the completed receptacles from the pockets, means for intermittently rotating said pocket structures, spiders or frames for advancing said heads to operative positions, and means being provided which will only permit the mechanism for lowering and raising the spider frames to operate when the pockets are in their proper position substantially as specified.

6. In a machine for the manufacture of paper receptacles the combination of a plurality of pockets into which such receptacles are placed, means for rotating such pockets, means for applying adhesive material to the inner surfaces of the receptacles, a spider or frame for carrying such adhesive applying means to and from its operative position, and means for causing the rotary movement of the pockets to be imparted to the adhesive applying mechanism, substantially as specified.

7. In a machine for the manufacture of paper receptacles the combination of a plurality of pockets into which such receptacles are placed, means for rotating such pockets,

means for applying adhesive material to the receptacles, a spider or frame for carrying such adhesive applying means to and from its operative position in the axial line of the pocket, and means for causing the adhesive applying mechanism, to make contact with the inner surface of the receptacle when in position therein and so to be rotated by such receptacle, substantially as specified.

8. In a machine for the manufacture of paper receptacles the combination of a plurality of pockets into which such receptacles are placed, means for rotating such pockets, a turret carrying the pockets, a spider or frame mounted below such turret and having an upward and downward movement and a plunger carried by such spider and adapted when the spider is in its upper position to project through one of the pockets, and, as the spider descends, to carry a bottom piece into position in the receptacle in such pocket, substantially as specified.

9. In a machine for the manufacture of paper receptacles the combination of a plurality of pockets in which the receptacles are placed, means for rotating such pockets, a turret carrying the pockets, a spider or frame mounted below such turret and having an upward and downward movement, a tube carried by such spider and adapted when the spider is in its upper position to project through one of the pockets, and, as the spider descends, to carry a bottom piece into position in the receptacle in such pocket, and means for producing suction through the tube during such descent, substantially as specified.

10. In a machine for the manufacture of paper receptacles the combination of a plurality of pockets into which the receptacles are placed, means for rotating such pockets, a tube for feeding the bottom pieces into position in the receptacles, a spider or frame carrying such tube, and means connecting such spider or frame and the tube whereby a suction is produced through the latter to hold the bottom pieces during the feeding operation, substantially as specified.

11. In a machine for the manufacture of paper receptacles the combination of a plurality of pockets into which the receptacles are placed, means for rotating such pockets, and a rotary rolling head arranged to enter the pocket centrally and to be then moved sidewise to come into contact with the top edge of the receptacle to roll it out to the desired configuration, substantially as specified.

12. In a machine for the manufacture of paper receptacles the combination of a plurality of pockets into which the receptacles are placed, means for rotating such pockets, a rotary rolling head arranged to enter the

pocket centrally and to be then moved side-
wise to come into contact with the top edge
of the receptacle to roll it out to the desired
configuration, and a spider or frame carry-
ing such rolling out head, substantially as
specified.

13. In a machine for the manufacture of
paper receptacles the combination of a plu-
rality of pockets into which the receptacles
are placed, means for rotating such pockets,
a head for rolling out the top edge of the
receptacle to the desired configuration, a
spider or frame carrying such rolling out
head, an eccentrically arranged sleeve sup-
porting the rolling out head in the spider
or frame, and means for partially rotating
such sleeve to bring the operating head into
contact with the side of the receptacle, sub-
stantially as specified.

14. In a machine for the manufacture of
paper receptacles the combination of a plu-
rality of pockets into which the receptacles
are placed, means for rotating such pockets,
a head for rolling out the top edge of the
receptacle to the desired configuration, a
spider or frame carrying such rolling out
head, an eccentrically arranged sleeve sup-
porting the rolling out head in the spider or
frame, means for partially rotating such
sleeve to bring the operating head into
contact with the side of the receptacle, and
means for varying the degree of eccentric-
ity imparted to the eccentric sleeve, substan-
tially as specified.

15. In a machine for the manufacture of
paper receptacles the combination of a plu-
rality of pockets into which the receptacles
are placed, means for rotating such pockets,
and a rotary rolling head arranged to enter
the pocket centrally and to be then moved
sidewise to come into contact with the bot-
tom edge of the receptacle to roll it out to
the desired configuration, substantially as
specified.

16. In a machine for the manufacture of
paper receptacles the combination of a plu-
rality of pockets into which the receptacles
are placed, means for rotating such pockets,
a rotary rolling head arranged to enter the
pocket centrally and to be then moved side-
wise to come into contact with the bottom
edge of the receptacle to roll it out to the
desired configuration, and a spider or frame
carrying such rolling out head, substantially
as specified.

17. In a machine for the manufacture of
paper receptacles the combination of a plu-
rality of pockets into which the receptacles
are placed, means for rotating such pockets,
a head for rolling out the bottom edge of
the receptacle to the desired configuration,
a spider or frame carrying such rolling out
head, an eccentrically arranged sleeve sup-
porting the rolling out head in the spider

or frame, and means for partially rotating
such sleeve to bring the operating head into
contact with the side of the receptacle, sub-
stantially as specified.

18. In a machine for the manufacture of
paper receptacles the combination of a plu-
rality of pockets into which the receptacles
are placed, means for rotating such pockets,
a head for rolling out the bottom edge of
the receptacle to the desired configuration,
a spider or frame carrying such rolling out
head, an eccentrically arranged sleeve sup-
porting the rolling out head, in the spider
or frame, means for partially rotating such
sleeve to bring the operating head into con-
tact with the side of the receptacle, and
means for varying the degree of eccentricity
imparted to the eccentric sleeve, substan-
tially as specified.

19. In a machine for the manufacture of
paper receptacles the combination of a plu-
rality of pockets into which the receptacles
are placed, means for rotating such pockets,
a turret carrying the pockets, a spider or
frame mounted below such turret and hav-
ing an upward and downward movement, a
plunger carried by such spider and adapted
when the spider is in its upper position to
project through one of the pockets, and, as
the spider descends, to carry a bottom piece
into position in the receptacle in such
pocket, a non-rotating crimping head hav-
ing a groove in its upper surface for turn-
ing in the top edge of the receptacle, a non-
rotating crimping head having a groove in
its upper surface for turning in the lower
edge of the receptacle, a rotary rolling head
arranged to enter the pocket centrally and
to be then moved sidewise to come into con-
tact with the top edge of the receptacle to
roll it out to the desired configuration, a
rotary rolling head arranged to enter the
pocket centrally and to be then moved side-
wise to come into contact with the bottom
edge of the receptacle to roll it out to the
desired configuration, and a reciprocating
plunger for delivering the completed vessels,
substantially as specified.

20. In a machine for the manufacture of
paper receptacles the combination of a plu-
rality of pockets into which the receptacles
are placed, means for rotating such pockets,
a hollow receptacle arranged to enter a
pocket centrally and to then be moved side-
wise to come in contact with and apply ad-
hesive material to the receptacle therein, a
turret carrying the pockets, a spider or
frame mounted below such turret and hav-
ing an upward and downward movement, a
plunger carried by such spider and adapted
when the spider is in its upper position to
project through one of the pockets, and, as
the spider descends, to carry a bottom piece
into position in the receptacle in such

pocket, a non-rotating crimping head having a groove in its under surface for turning in the top edge of the receptacle, a non-rotating crimping head having a groove in its upper surface for turning in the lower edge of the receptacle, a rotary rolling head arranged to enter the pocket centrally and to be then moved sidewise to come into contact with the top edge of the receptacle to roll it out to the desired configuration, a rotary rolling head arranged to enter the pocket centrally and to be then moved sidewise to come into contact with the top edge of the receptacle to roll it out to the desired configuration, a rotary rolling head arranged to enter the pocket centrally and to be then moved sidewise to come into contact with the bottom edge of the receptacle to roll it out to the desired configuration, and a reciprocating plunger for delivering the completed vessels, substantially as specified.

21. In a machine for the manufacture of paper receptacles the combination of a plurality of pockets into which the receptacles are placed, means for rotating such pockets, means for feeding the bottom pieces into position therein, means for turning in the

top and bottom edges of such receptacles, means for rolling out such top and bottom edges to the desired configuration, and means for applying sterilizing and waterproofing material such as paraffin wax to the receptacle, substantially as specified.

22. In a machine for the manufacture of paper receptacles the combination of a plurality of pockets into which the receptacles are placed, means for rotating such pockets, means for applying adhesive material to the receptacles, means for feeding the bottom pieces into position therein, means for turning in the top and bottom edges of such receptacles, means for rolling out such top and bottom edges to the desired configuration, means for applying sterilizing and waterproofing material such as paraffin wax to the receptacle, and means for delivering the completed receptacles, substantially as specified.

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

ELMER ZEBLEY TAYLOR.

Witnesses:

CARL R. LOOP,
H. D. JAMESON.