

No. 682,821.

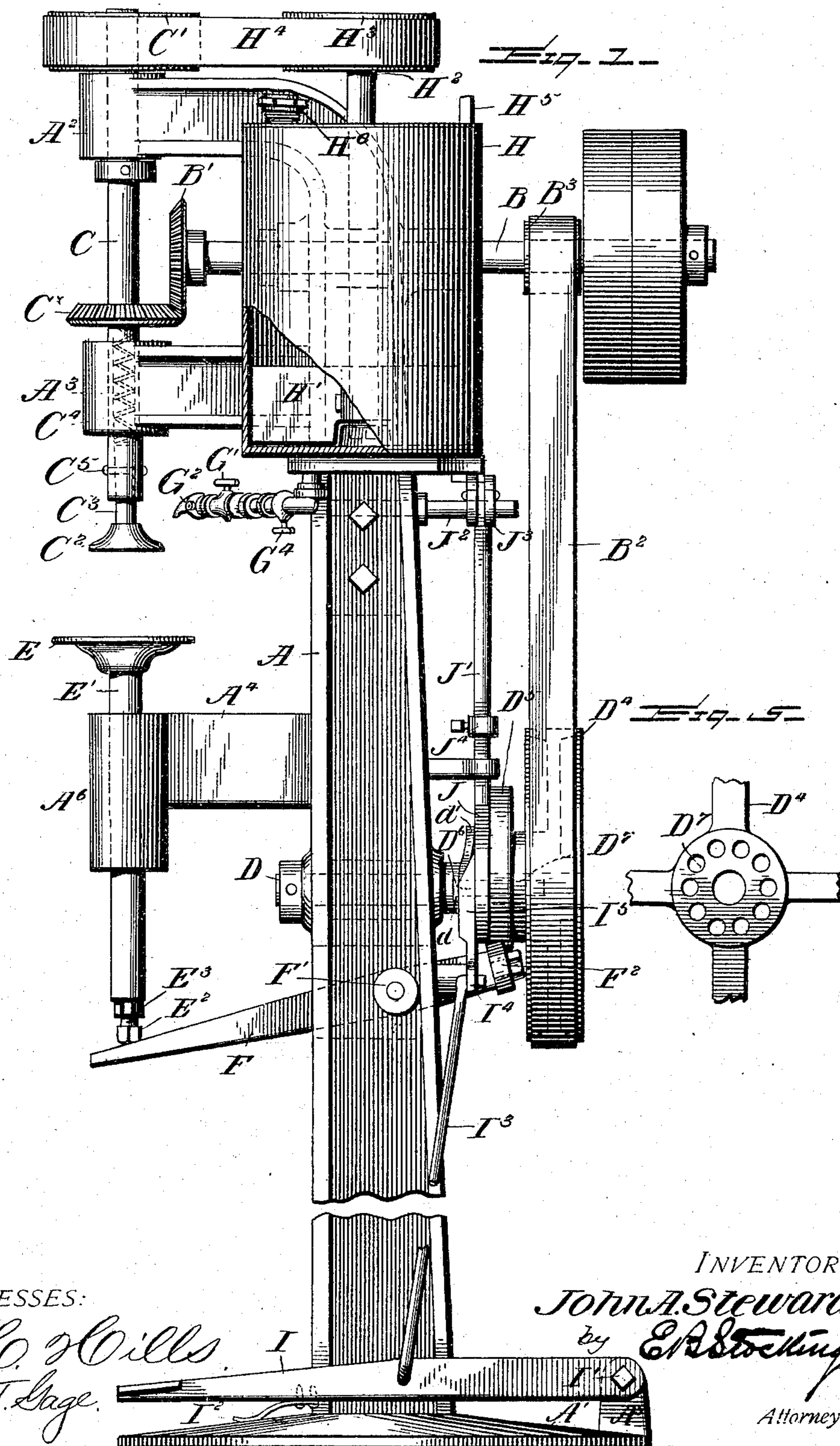
Patented Sept. 17, 1901.

J. A. STEWARD.  
MACHINE FOR COATING CAN COVERS.

(Application filed Oct. 20, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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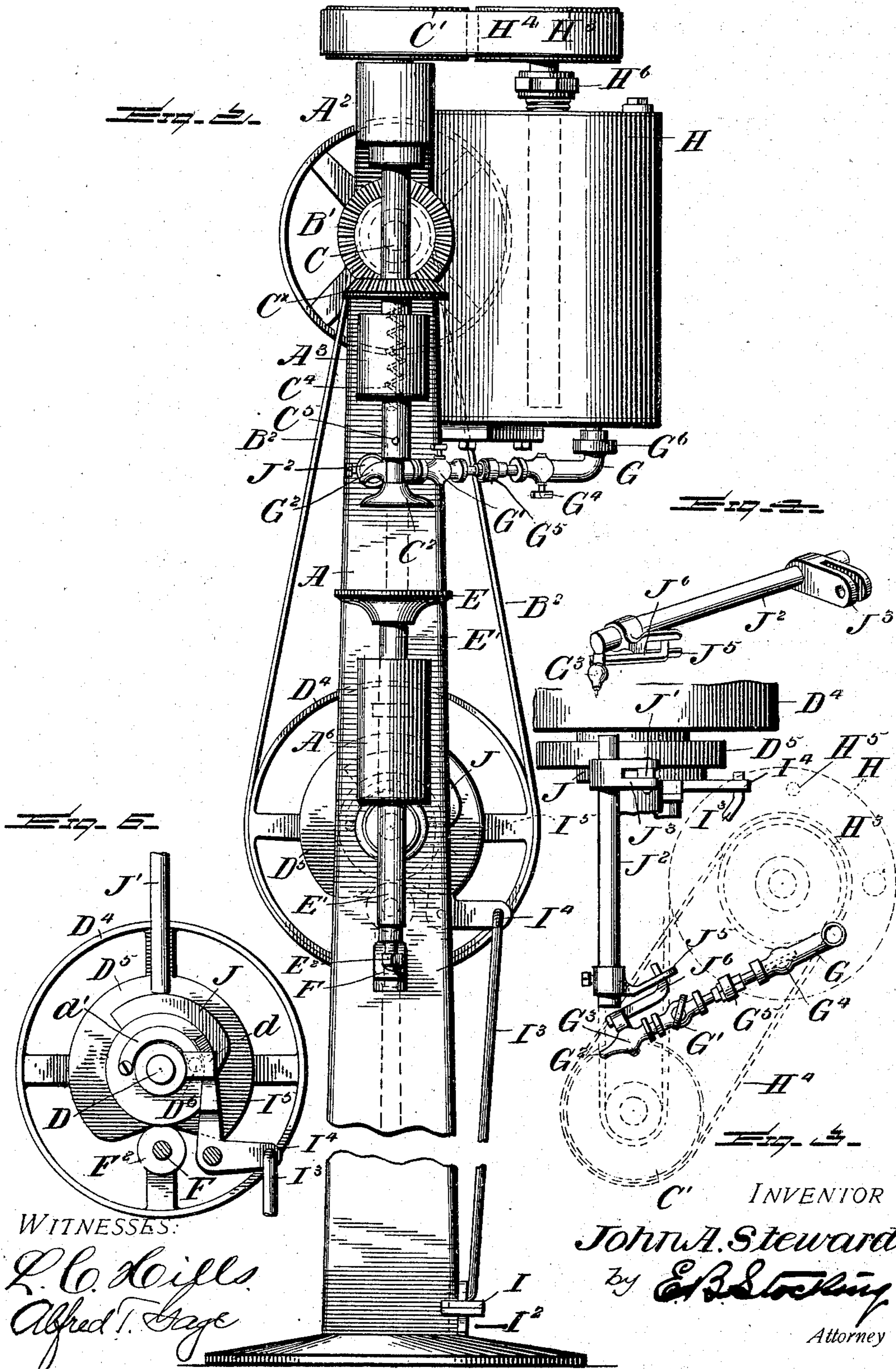
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2 Sheets—Sheet 2.



# UNITED STATES PATENT OFFICE.

JOHN A. STEWARD, OF EAST CLARENDON, VERMONT.

## MACHINE FOR COATING CAN-COVERS.

SPECIFICATION forming part of Letters Patent No. 682,821, dated September 17, 1901.

Application filed October 20, 1900. Serial No. 33,723. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. STEWARD, a citizen of the United States, residing at East Clarendon, in the county of Rutland, State of Vermont, have invented certain new and useful Improvements in Machines for Coating Can-Covers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to a machine for coating can-covers, and particularly for placing thereon a thin layer of plastic composition adapted to make an air-tight joint with the top of the can when the cover or cap is applied thereto.

15 The invention has for its object to provide a machine for applying to the flange of the cover of sheet-metal cans or other receptacles an annular gasket of a suitable plastic composition, which when the cover is double-seamed or pressed upon the can-body an air-tight joint or seam will be secured.

20 A further object of the invention is to provide a structure in which the cover will be held upon a support and adapted to be moved upward into contact with a rotating device and also beneath a suitable device for feeding the plastic composition thereto.

25 The invention also has for an object to provide an automatic means for controlling the feed of the plastic composition to the can-cover, which means is suitably timed, so as to perfect the operation during the rotation of the cover.

30 Other objects and advantages of the invention will hereinafter appear in the following description and the novel features thereof will be particularly pointed out in the appended claims.

35 In the drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a front view thereof. Fig. 3 is a partial plan with parts in dotted lines. Fig. 4 is a detail perspective of the valve-operating means. Fig. 5 is a detail elevation of the hub of the pulley cooperating with the clutch-pin, and Fig. 6 is an elevation of the cams and clutch mechanism.

40 Like letters of reference indicate like parts throughout the several figures of the drawings.

50 The letter A designates a suitable standard or frame for a machine, which is provided at

its lower portion with a base A' of any suitable formation. At the upper end of the machine a bearing bracket or sleeve A<sup>2</sup> is provided and beneath the same a second similar sleeve A<sup>3</sup> is formed, while at a suitable point upon the frame a bracket A<sup>4</sup> is provided for slidably supporting the work-table. The power-shaft B is provided at one end with the usual fast and loose pulleys for driving purposes and at its opposite end with a beveled gear B', adapted to drive the rotating shaft C by means of contact with the gear C<sup>x</sup> upon said shaft. The cam-shaft D, located at the lower portion of the standard, is connected with the shaft B by means of a belt B<sup>2</sup>, adapted to pass over a pulley B<sup>3</sup> upon the shaft B and a driving-pulley D<sup>4</sup> upon the shaft D. This cam-shaft D is provided with a suitably-formed cam D<sup>5</sup>, loosely mounted upon the shaft and adapted to be connected thereto or to the driving-pulley D<sup>4</sup> by any suitable means—for instance, a clutch-pin D<sup>6</sup>, mounted in the hub of the cam D<sup>5</sup> and adapted to slide into any one of a series of apertures D<sup>7</sup>, formed in the hub of the driving-pulley D<sup>4</sup>, which hub forms a part of the clutch mechanism. (See Fig. 5.) This clutch is operated in the present instance through the medium of the treadle-I, pivoted at its rear end I' to a lug A<sup>5</sup>, extending upward from the base and normally held in an elevated position by means of a spring I<sup>2</sup>, disposed between the treadle-lever and the base. This treadle-lever I is adapted to operate the clutch-pin D<sup>6</sup> through the medium of the connecting-rod I<sup>3</sup>, having a pivotal connection to the lever I and to one end of a crank-lever I<sup>4</sup>, the clutch-finger I<sup>5</sup> of which is suitably beveled and adapted in its oscillation to be projected beneath the head d of the clutch-pin D<sup>6</sup>, so as to withdraw the same from its locking-contact with the driving-pulley D<sup>4</sup>. With this mechanism it will be seen that when the clutch engages the driving-pulley the cam D<sup>5</sup> will make one revolution and the clutch-finger I<sup>5</sup> withdraws the pin D<sup>6</sup> and stops the rotation of the cam. The clutch-pin D<sup>6</sup> is normally forced into locking position by any suitable means—for instance, a spring d', connected with the head thereof and secured at its opposite end to the hub of the cam.

The reservoir or tank H is of suitable ca-

capacity to hold the desired quantity of liquid composition for use in the machine and, as shown Fig. 1, may be provided with any suitable construction of stirrers or paddles  $H^1$ , carried at the lower end of a shaft  $H^2$ , which is suitably driven by means of a pulley  $H^3$  from the shaft C by means of a secondary pulley  $C'$  and intervening belt  $H^4$ , so as to receive power from the shaft C to properly agitate the plastic material within the reservoir H by the movement of the paddle or stirrer blades therein. Owing to the fact that this composition may be of a slightly thick consistency and not readily adapted to flow, I have provided for that purpose an air-pipe  $H^5$ , by means of which compressed air from any suitable source may be introduced into the tank to place the plastic composition under pressure and insure a proper flow thereof. The quantity of such flow may be regulated by a suitable arrangement of valves to be hereinafter described. An air-tight cap  $H^6$  may be applied to the tank for the purpose of introducing into the same the composition whenever necessary.

For the purpose of regulating the flow of composition or liquid from the tank by means of the outlet-pipe G, which is connected to the lower portion of the tank, a stop-cock or regulating-valve  $G^1$  is provided in said pipe, while the feed-nozzle  $G^2$  is provided with a suitable automatically-operated feed spout or valve  $G^3$ , by which the amount of composition to be applied to each cover is determined. If either the regulating-valve or any of the parts hereinbefore described become clogged with the composition or their removal is otherwise rendered necessary, the same can readily be accomplished by closing the shut-off valve  $G^4$  in the pipe G and removing the union  $G^5$ , by means of which the parts may be thoroughly cleaned, and for the purpose of permitting a movement of the discharge-pipe G in the arc of a circle the same is connected with the tank H by means of a union  $G^6$ , forming a swivel-joint with said union as an axis, whereby the discharge-spout may be so adjusted as to operate over the flange of covers of different sizes—for instance, if the cover be a small one the spout  $G^2$  would be swung near the center of the same, while if a larger cover is to be coated the swivel-joint permits an outward movement of the discharge-spout  $G^2$ .

The cover to be coated is supported upon work-table E, carried at the upper end of a reciprocating spindle  $E'$ , rotatably mounted in a sleeve  $A^6$  at the outer end of the bracket  $A^4$ . The lower end of this spindle is provided with an adjustable set-screw  $E^2$  and adjusting-nut  $E^3$ , by means of which the length of throw in a vertical movement of the shaft may be adjusted. In contact with the lower end of the nut  $E^2$  is the extended end of a lever F, pivotally mounted at  $F'$  upon the standard and provided at its inner end with a friction-roll  $F^2$ , adapted to ride upon the edge of the cam  $D^5$  and to be thereby de-

pressed, which movement elevates the outer end of the lever, bringing the can-cover into position for work.

Above the work-table E is a contact-foot  $C^2$ , carried at the lower end of a spindle  $C^3$ , mounted in an aperture in the lower end of the shaft C and normally pressed downward by means of a spring  $C^4$ , introduced between the upper end of the spindle  $C^3$  and the wall of the recess. The movement of this spindle is also guided by a suitable cross-pin  $C^5$ , operating in slots in the shaft C, and thereby held against rotary movement within its socket. When the can-cover in its upward movement is pressed against the foot  $C^2$ , the spring is placed under partial compression and the rotary movement of the shaft C imparted to the can-cover and table, thereby rotating the same beneath the discharge-spout  $G^2$  of the composition-tank. For the purpose of automatically controlling the opening and closing of this spout  $G^2$  a cam J is provided upon the side of the cam  $D^5$  and actuated in the movement of said cam  $D^5$ . Riding upon this cam J is the lower end of a rod  $J'$ , the upper end of which is connected with a rock-shaft  $J^2$  by means of a crank-arm  $J^3$ , and the downward movement of said rod is determined and limited by means of a suitable set-collar  $J^4$ . When the rod  $J'$  is forced upward in the rotation of the cam J, the rock-shaft  $J^2$  is rotated and also the bifurcated arm  $J^5$ , carried thereby at the end adjacent to the spout. The valve-stem of the valve  $G^3$  is provided with a suitable angle-arm  $J^6$ , (see Figs. 3 and 4,) adapted to lie between the fingers of the lever or arm  $J^5$  and to be rotated thereby in the movement of the rock-shaft. After the face of the cam J has closed the valve  $G^3$  through the intermediate connections and has passed the end of the rod  $J'$  in the movement of the cam the valve will be opened through gravity imparted by the weight of the crank-arm  $J^3$  and the rod  $J'$  suspended therefrom.

In the operation of the invention a can-cover will be placed upon the table E and the spindle  $E'$  thereof elevated by means of the lever F. This is accomplished by a downward movement upon the treadle I, which removes the clutch-finger  $I^5$  from beneath the clutch-pin  $D^6$ , permitting the same to be forced inward by the spring at its head and connecting the cams  $D^5$  and J with the driving-wheel  $D^4$ , which is suitably driven from the main driving-shaft B. The rotation of the cam  $D^5$  presses downward the inner end of the lever F, carrying the cover up into contact with the presser-foot  $C^2$ , by means of which it is rotated. At this time the cam J has come into proper position to permit the rock-shaft  $J^2$  to rotate by gravity and open the valve to the spout  $G^2$ , causing the plastic composition to flow from the spout onto the cover, and the speed of rotation of the machine is so determined relative to the outflow of composition as to provide for a complete coating of the flange of the cover with the

composition. As soon as pressure is relieved from the treadle I the same is thrown upward by the spring I<sup>2</sup> and the clutch-finger thrown into position to operate and release the clutch from the driving-pulley upon the continued rotation of the cam. As soon as the head of the pin D<sup>6</sup> reaches this clutch-finger I<sup>5</sup> it is thrown outward and from contact with an aperture D<sup>7</sup> of the driving-pulley D<sup>4</sup>, so that the cams are disconnected from their driving means and the operation of the machine ceases, the table E having been previously lowered and the valve G<sup>3</sup> closed through the movement of the cam preliminary to the withdrawal of the clutch-pin. It will of course be seen that if pressure be retained upon the lever I the clutch-finger will be held out of operative position, and the coating action may be repeated for any desired number of times. After the cover has been thus coated with plastic composition it may be dried in any suitable manner and is then in condition for use upon the can.

It may be stated that any desired plastic composition may be used upon this machine; but it has been found desirable to use one in which a suitable filler or substance, such as chalk, has been mixed, so as to obviate the necessity of coating the cover after the plastic composition has been applied in order to prevent adhesion of the cover with any object with which it may come in contact. The machine as constructed therefore obviates the necessity of providing means for placing any dry substance upon the plastic composition, and by means of the structure for elevating the cover into alinement with the discharge-spout and rotating the same in such position a much more reliable and efficient operation of the parts is secured than in other constructions.

It will be obvious that changes may be made in the details of construction of the several parts such as are naturally suggested to the skilled in this art without departing from the spirit of the invention as defined by the appended claims.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a reciprocatory work-support, of a device for reciprocating said support, a reservoir, means for automatically controlling the discharge from said reservoir, a constantly-rotating device for rotating said support when in contact therewith during the discharge from said reservoir, and a rotatable device carried by a driving-shaft to successively control the reciprocation of the work-support and the operation of the reservoir-discharge means; substantially as specified.

2. The combination with a reciprocatory support for a can-cover carried by a stationary standard, of continuously-rotating means above the same, means for automatically raising said cover-support into contact with said

rotating means, a reservoir adjacent to said rotating means, means for automatically controlling the discharge from said reservoir while the cover is being rotated, a rotatable device carried by the driving-shaft to successively control the reciprocation of the support and the movement of the reservoir-discharge means; substantially as specified.

3. The combination with a reciprocatory support for a can-cover carried by a stationary standard, of continuously-rotating means above the same, means for automatically raising said cover-support into contact with said rotating means, a reservoir adjacent to said rotating means, means for automatically controlling the discharge from said reservoir while the cover is being rotated, a rotatable device carried by the driving-shaft to successively control the reciprocation of the support and the movement of the reservoir-discharge means, and means for releasing the automatically-controlled mechanisms from their driving device; substantially as specified.

4. The combination with a reciprocatory support for a can-cover carried by a stationary standard, of continuously-rotating means above the same, means for automatically raising said cover-support into contact with said rotating means, a reservoir adjacent to said rotating means, means for automatically controlling the discharge from said reservoir while the cover is being rotated, a rotatable device carried by the driving-shaft to successively control the reciprocation of the support and the movement of the reservoir-discharge means, means for releasing the automatically-controlled mechanisms from their driving device, and means for throwing said releasing device out of operative position to permit the action of the automatically-controlled device; substantially as specified.

5. The combination with a support for a can-cover, of means for rotating said cover and support, means for delivering a composition to said cover, automatic means for controlling the flow of said composition during a rotation of said cover, and an automatically-controlled device for retaining said cover in contact with its rotating means during the coating action and afterward removing the same to stop the rotation of the cover; substantially as specified.

6. The combination with a support for a can-cover, of means for rotating said cover and support, means for delivering a composition to said cover, automatic means for controlling the flow of said composition during a rotation of said cover, an automatically-controlled device for retaining said cover in contact with its rotating means during the coating action and afterward removing the same to stop the rotation of the cover; and means for rendering said automatic devices inoperative after the coating of the cover; substantially as specified.

7. The combination with a reciprocatory

work-support, of a pivoted lever adapted to raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said  
5 cam and driving means, and means for coating the work upon said support; substantially as specified.

8. The combination with a reciprocatory work-support, of a pivoted lever adapted to  
10 raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding composition to work upon said support,  
15 a feed-cam carried by said elevating-cam, and connections whereby the composition will be fed when the work-support is elevated; substantially as specified.

9. The combination with a reciprocatory  
20 work-support, of a pivoted lever adapted to raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding  
25 composition to work upon said support, a feed-cam carried by said elevating-cam, a feed-spout provided with a valve, a rock-arm operatively connected with said valve, and a  
30 rod extending downward from said rock-arm and riding upon said feed-cam; substantially as specified.

10. The combination with a reciprocatory work-support, of a pivoted lever adapted to  
35 raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding composition to work upon said support,  
40 a feed-cam carried by said elevating-cam, a feed-spout provided with a valve, a rock-arm operatively connected with said valve, a rod extending downward from said rock-arm and riding upon said feed-cam; a bifurcated arm  
45 carried by said rock-arm, and an angle-lever carried by the valve of said feed-spout; substantially as specified.

11. The combination with a reciprocatory work-support, of a pivoted lever adapted to  
50 raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding composition to work upon said support,  
55 a feed-cam carried by said elevating-cam, a feed-spout provided with a valve, a rock-arm operatively connected with said valve, a rod extending downward from said rock-arm and riding upon said feed-cam, a bifurcated arm  
60 carried by said rock-arm, an angle-lever carried by the valve of said feed-spout, a spring-actuated presser-foot adapted to contact with the work upon said support, and means for continuously rotating said foot; substantially as specified.

65 12. The combination with a reciprocatory work-support, of a pivoted lever adapted to raise the same, a cam adapted to bear against

one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding composition to work upon said support,  
70 a feed-cam carried by said elevating-cam, a feed-spout provided with a valve, a rock-arm operatively connected with said valve, a rod extending downward from said rock-arm and  
75 riding upon said feed-cam, a bifurcated arm carried by said rock-arm, an angle-lever carried by the valve of said feed-spout, a spring-actuated presser-foot adapted to contact with the work upon said support, means for con-  
80 tinuously rotating said foot, composition-reservoirs, stirrers within the same, and driving means for continuously operating said stirrers; substantially as specified.

13. The combination with a reciprocatory  
85 work-support, of a pivoted lever adapted to raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding  
90 composition to work upon said support, a feed-cam carried by said elevating-cam, a feed-spout provided with a valve, a rock-arm operatively connected with said valve, a rod extending downward from said rock-arm and  
95 riding upon said feed-cam, a bifurcated arm carried by said rock-arm, an angle-lever carried by the valve of said feed-spout, a spring-actuated presser-foot adapted to contact with the work upon said support, means for con-  
100 tinuously rotating said foot, a composition-reservoir, stirrers within the same, driving means for continuously operating said stirrers; a clutch-finger adapted to normally lie in the path of a clutch-pin, and means for  
105 throwing said pin out of operative position; substantially as specified.

14. In a machine of the class described, a shaft having a driving-wheel thereon provided with an apertured hub, a cam loosely  
110 mounted on said shaft, a clutch-pin slidably mounted in said cam, a spring for normally pressing said pin inward to engage an aperture in said driving-hub, a clutch-finger adapted to engage and withdraw said pin  
115 when thrown into the path thereof, a reciprocatory work-support, an adjustable means at the lower end of the same, a pivoted elevating-lever engaging said means at one end, and a friction-roller at the opposite end of  
120 said lever traveling upon said cam; substantially as specified.

15. In a machine of the class described, a shaft having a driving-wheel thereon provided with an apertured hub, a cam loosely  
125 mounted in said shaft, a clutch-pin slidably mounted upon said cam, a spring for normally pressing said pin inward to engage the apertures in said driving-hub, a clutch-finger adapted to engage and withdraw said pin  
130 when thrown into the path thereof, a reciprocatory work-support, an adjustable means at the lower end of the same, a pivoted elevating-lever engaging said means at one end,

a friction-roller at the opposite end of said lever traveling upon said cam, an angle-arm extending from said clutch-finger, a pivoted treadle operatively connected with said arm, and means for normally elevating said treadle and throwing the clutch-finger into operative position; substantially as specified.

16. In a machine of the class described, the combination with a work-support, of a composition-reservoir, stirrers within the same, means for rotating said stirrers, a discharge-spout from said reservoir provided with a discharge-valve, an angle-arm extending from said valve, a rock-shaft provided with a bifurcated arm to engage said lever, a crank from the same, and means for automatically elevating said rod to operate said valve; substantially as specified.

17. In a machine of the class described, the combination with a work-support, of a composition-reservoir, stirrers within the same, means for rotating said stirrers, a discharge-spout from said reservoir provided with a discharge-valve, an angle-arm extending from said valve, a rock-shaft provided with a bifurcated arm to engage said lever, a crank from the same, means for automatically elevating said rod to operate said valve, a regulating-cock between said automatically-controlled valve and the reservoir to determine the amount of flow from the spout, and a shut-off cock between said regulating-cock and the reservoir to permit removal of the spout and adjacent parts; substantially as specified.

18. In a machine of the class described, the combination with a work-support, of a reservoir, a delivery-spout extending from the same, an automatically-controlled valve in said spout, a regulating-cock to determine the flow from said valve, and a shut-off cock to permit the removal of the automatically-controlled valve and regulating-cock; substantially as specified.

19. In a machine of the class described, the combination with a standard having a series of supporting-brackets, a horizontally-dis-

posed main driving-shaft, a work-support reciprocally mounted in one of said brackets, a counter-shaft at the lower portion of the standard, means connecting said main driving-shaft and counter-shaft for elevating the work-support, a vertically-disposed shaft carrying a presser-foot, gearing between said shaft and the main driving-shaft, a reservoir provided with stirrers, and connections between the upper end of the presser-foot shaft and the driving-shaft of said stirrers; substantially as specified.

20. In a machine of the class described, the combination with a reciprocatory work-support, of a continuously-driven shaft above the same, a presser-foot yieldingly mounted in the lower portion of said shaft and adapted to rotate therewith, means for elevating said work-support to bring the work into contact with the presser-foot, and a composition-delivery adapted to discharge upon the work while being rotated; substantially as specified.

21. In a machine of the class described, the combination with a reciprocatory work-support, of means to rotate the same when elevated, a composition-reservoir, and a swiveled delivery-spout and piping adapted to swing radially over the work when elevated upon said support; substantially as specified.

22. In a machine of the class described, the combination with a reciprocatory work-support, of means to rotate the same when elevated, a composition-reservoir, a swiveled delivery-spout and piping adapted to swing radially over the work when elevated upon said support, means for automatically elevating said work-support, and means for automatically controlling the discharge from said delivery-spout during the rotation of the work; substantially as specified.

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

JOHN A. STEWARD.

Witnesses:

GEO. K. MONTGOMERY,  
CLIFFORD C. FLETCHER.