E. HERISSE.

DEPOSITING MACHINE.

APPLICATION FILED JUNE 8, 1911.

1,014,874.

Patented Jan. 16, 1912.

4 SHEETS—SHEET 1.

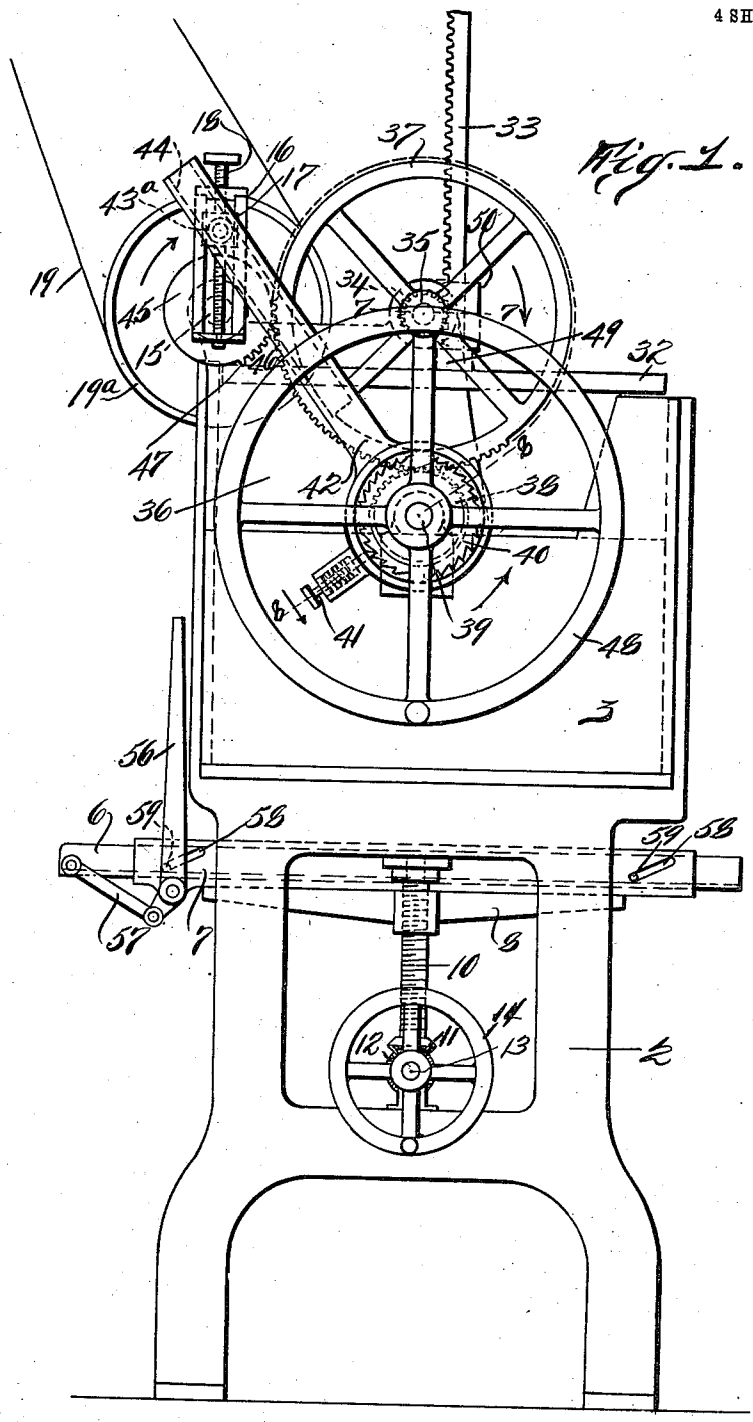

Fig. 1.

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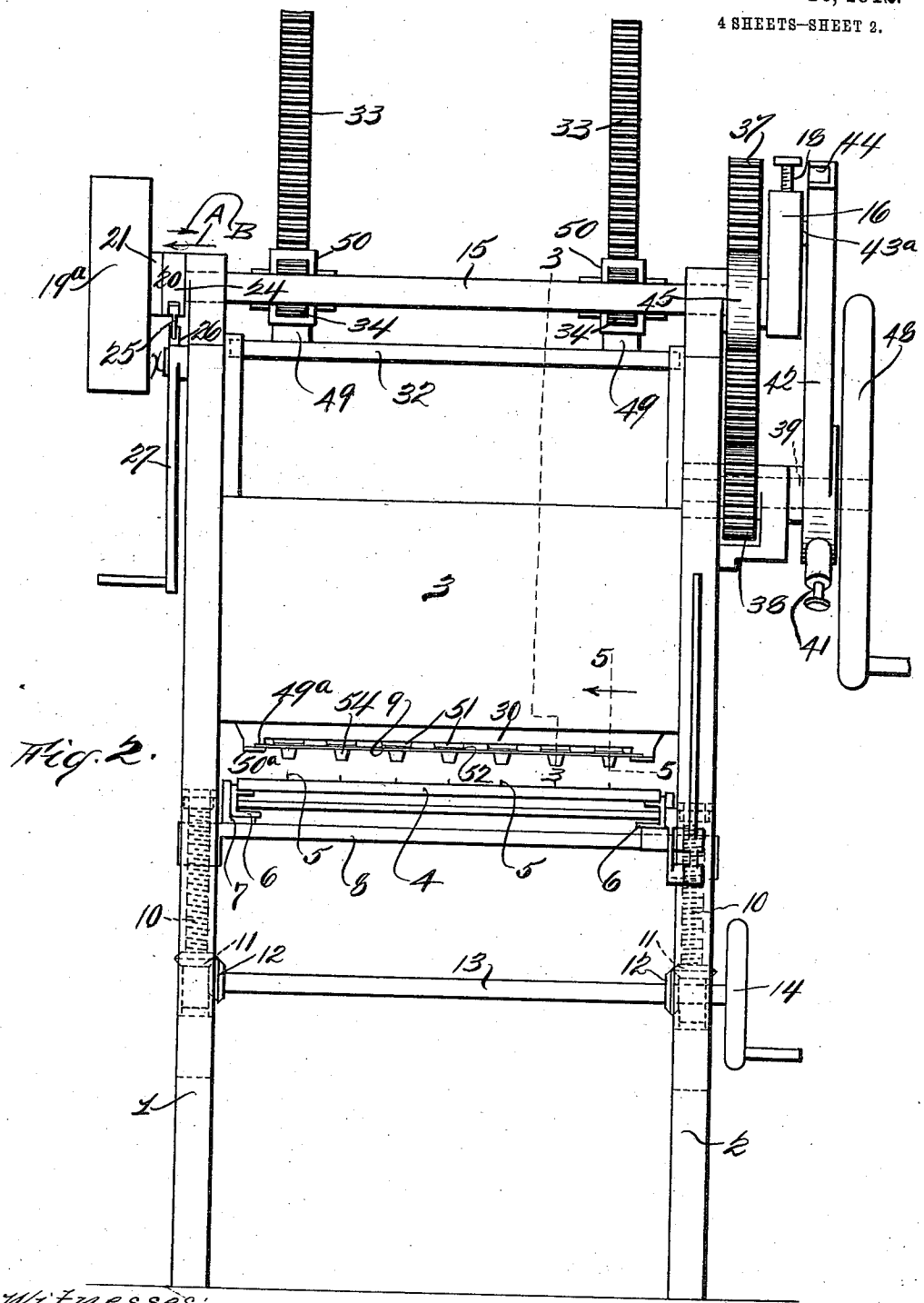

Fig. 2.

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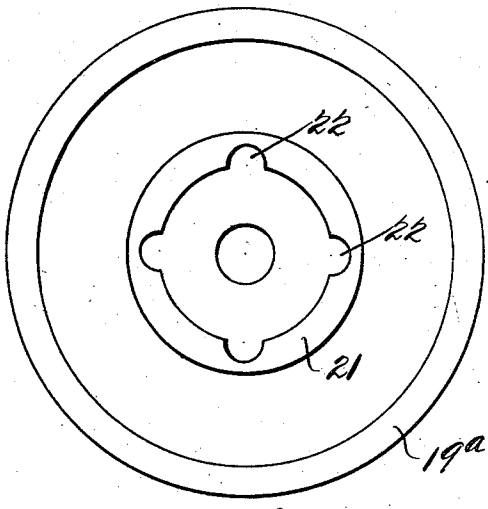
Fig. 10.



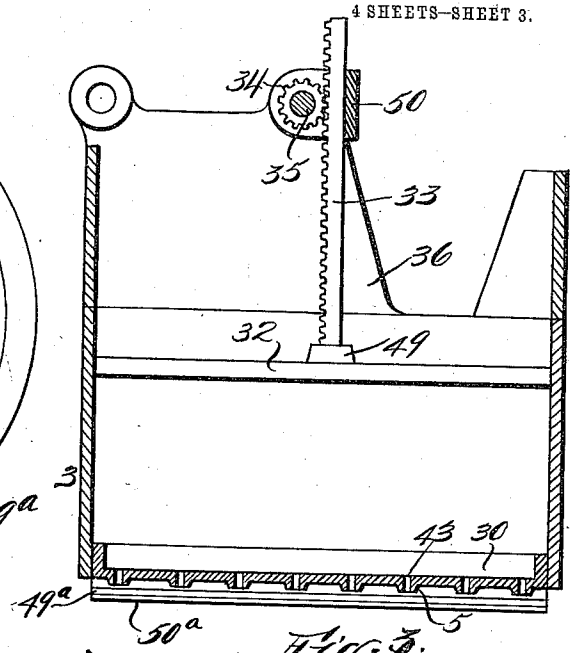


Fig. 5.

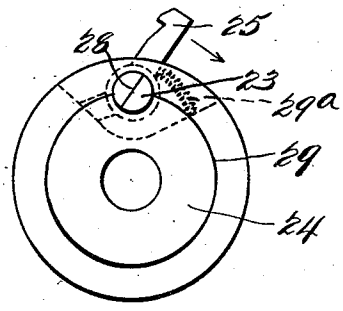


Fig. 11.

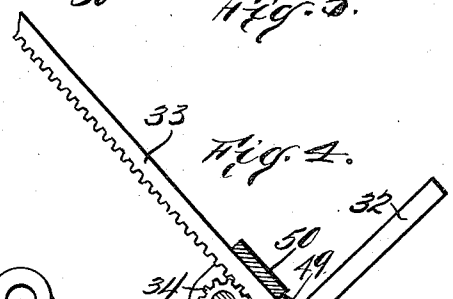


Fig. 4.

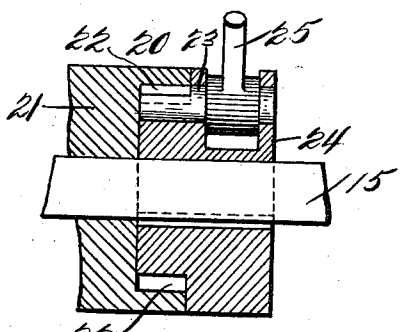
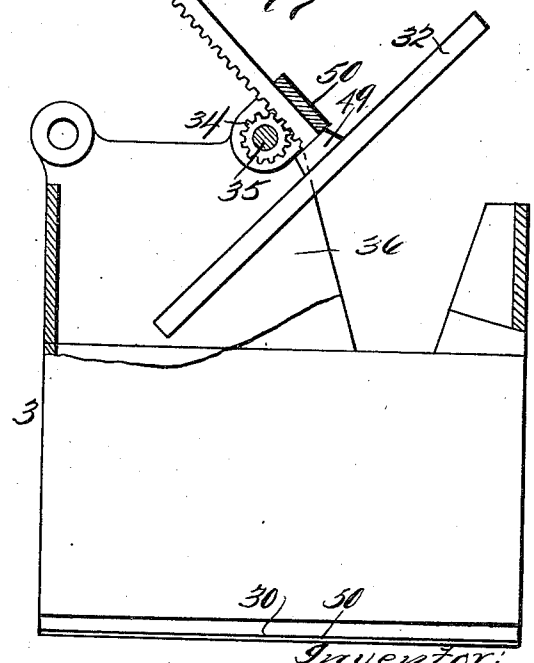


Fig. 12.



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4 SHEETS—SHEET 4.

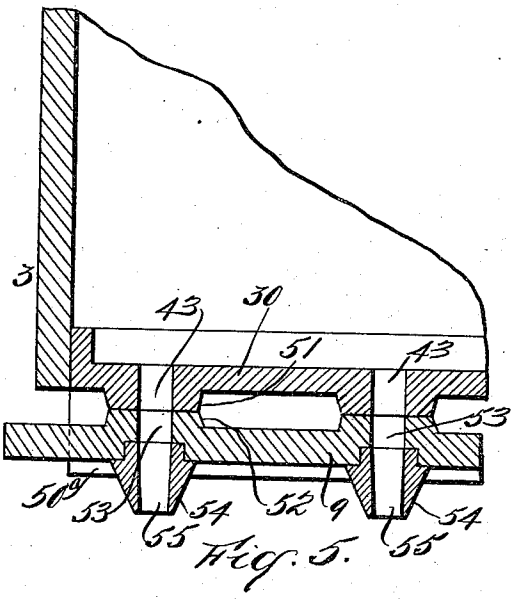

Fig. 5.

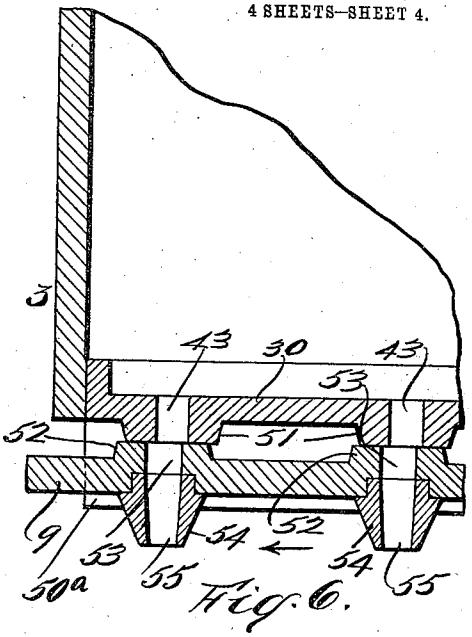

Fig. 6.

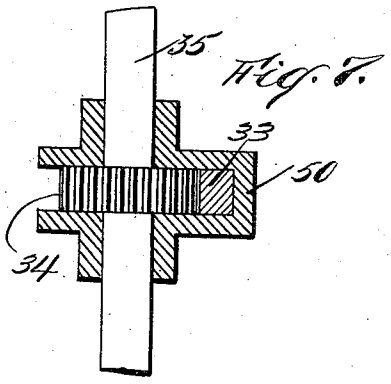

Fig. 7.

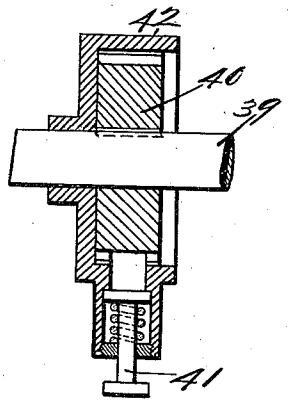

Fig. 8.

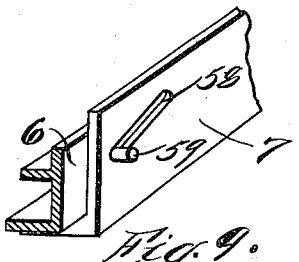

Fig. 9.

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UNITED STATES PATENT OFFICE.

EMILE HERISSE, OF NEW YORK, N. Y.

DEPOSITING-MACHINE.

1,014,874. Specification of Letters Patent. Patented Jan. 16, 1912.

Application filed June 8, 1911. Serial No. 631,904.

To all whom it may concern:

Be it known that I, EMILE HERISSE, a citizen of the United States of America, residing at New York city, Manhattan borough, county and State of New York, have invented certain new and useful Improvements in Depositing-Machines, of which the following is a full, clear, and exact description.

This invention relates to an improvement in depositing machines for use in connection with confectionery, pastry or the like, the main object of the invention being to provide a machine of this character that is provided with a slidable nozzle-plate so arranged as to regulate the flow of the material to be deposited through the die-plate.

A further object of my invention is to provide a plunger that can be automatically tilted upwardly, if desirable, when it has reached the limit of its upward movement in order that fresh material can be poured into the reservoir or receptacle for the material to be deposited.

My invention comprises further features of improvement and combinations and arrangement of parts which will hereinafter be described.

I will now proceed to describe my invention in detail, the novel features of which I will finally claim, reference being had to the accompanying drawings, forming part hereof and which illustrate one embodiment of my invention, wherein—

Figure 1 is a side elevation of a depositing machine embodying my improvements; Fig. 2 is a rear view thereof; Fig. 3 is a diagrammatic sectional view showing the plunger within the reservoir, the section being taken on a line 3—3 in Fig. 2, the nozzle-plate being omitted; Fig. 4 is a similar view, partly in section, showing the plunger raised and tilted; Fig. 5 is an enlarged sectional view of a portion of the reservoir, die-plate and nozzle-plate, the nozzle-plate being shown in its normal position; Fig. 6 is a similar view, the nozzle-plate being shown as shifted to partly close the openings in the die-plate; Fig. 7 is an enlarged longitudinal sectional detail view, the section being taken on a line 7—7 in Fig. 1, showing the manner of operating and supporting the plunger racks; Fig. 8 is an enlarged sectional detail view of the operating arm for the plunger and the ratchet-wheel operated thereby, the section being taken on a line 8—8 in Fig. 1; Fig. 9 is a fragmentary perspective detail view showing one end of the slidable support for the trays; Fig. 10 is an enlarged detail face view, looking in the direction of the arrow A in Fig. 2, of one member of the clutch mechanism; Fig. 11 is a similar view, looking in the direction of the arrow B in Fig. 2, showing the other member of the clutch mechanism; and Fig. 12 is a longitudinal sectional view of the clutch members assembled.

Referring to the drawings, my improved depositing machine comprises the frame-members 1 and 2, upon which are mounted a reservoir 3, or receptacle for the material which is to be deposited or forced upon the pastry or confectionery carried by a tray 4. The tray illustrated is designed for flat cakes, such, for instance, as macaroons, which are placed on pins 5 carried by the tray 4. The tray 4 is carried by frames 6 which are slidably supported by other frames 7 mounted on the cross-head 8, the said cross-head being adapted for vertical movement toward or away from a nozzle-plate 9 by means of threaded studs 10, the said studs being rotated by intermeshing gears 11 and 12. The gears 12 are carried by a shaft 13, which in turn is rotated by means of a hand-wheel 14. As can be seen in Fig. 1 the studs or spindles 10 are carried by the frame-members 1 and 2.

As can be seen in Figs. 1 and 2, the frame-members 1 and 2, at the upper end thereof, support an operating shaft 15, to one end of which is secured an arm 16 provided with an adjustable block 17, the said block being adjusted by means of a threaded spindle 18. The shaft 15 is rotated by means of a belt 19 and pulley 19^a, which pulley is provided with a clutch-mechanism 20 illustrated in Figs. 10 to 12 inclusive. The function of the clutch-mechanism is to permit of an intermittent rotation of the shaft 15 by the belt 19; in other words, to carry out the operation of depositing material upon the cakes or confectionery carried by the tray 4, it is desirable that the machine be caused to operate through a certain fixed period, and then stop.

The clutch-mechanism 20 is designed to cause the shaft 15 to rotate through one revolution of the pulley 19^a and then come to rest, in manner following: Referring to Figs. 10 and 12 it will be seen that the clutch-mechanism 20 comprises a socketed member 21, which is carried by the pulley

19ª, the said socketed member being provided with semi-circular recesses 22 into which one end of a pin 23 carried by a co-operating clutch member 24, fits and which in turn is rigidly secured to the operating shaft 15. By referring to Fig. 11, which illustrates a face view of the clutch member 24, it will be seen that that end of the pin 23 which is designed to enter the recesses 22 is cut away, leaving but half of the end of the said pin adapted for engagement with the socket member 21. In said Fig. 11, the pin 23 is shown in position to lock the members 21 and 24 of the clutch-mechanism together, at which time the shaft 15 will be rotated by the pulley 19ª, which in turn is loosely mounted upon the end of the shaft 15 and rotates constantly. By an inspection of Figs. 11 and 12 it will be seen that the pin 23 is provided with an arm 25, which acts to rotate the pin when said arm contacts with the end 26 of a lever 27 on the frame 1. When the arm 25 and end 26 of the lever 27 are in contact one with the other the surface 28 of the pin 23 will be coincident with the surface 29 of the clutch member 24, at which time the pulley 19ª will rotate without rotating the shaft 15. Should it become desirable to cause the shaft 15 to rotate, the end 26 of the lever 27 will be carried away from the arm 25, thereby permitting a spring 29ª, (see Fig. 11) to force the arm 25 upwardly, thereby rotating the pin 23 and causing the end of the pin 23 to engage with a slot 22, when any one of said slots 22 come into alinement with said pin. As soon as the shaft 15 commences to rotate, the lever 27 will be depressed, thereby causing the end 26 to come into the path of movement of the arm 25. Consequently, when said arm and the end of said lever contact one with the other the said arm will be forced backwardly against the tension of the spring 29ª, thereby rotating the pin 23 and causing the surface 28 thereof to coincide with the surface 29 of the clutch member 24. The weight of the longer arm of the lever 27 will be sufficient to return the shorter arm 26 to the path of movement of the arm 25 after said lever has been operated to cause the clutch-mechanism to operate.

The above-described operation will be timed to cause the shaft 15 to make but one revolution. The object of this is to cause a certain predetermined amount of material to be forced through a die-plate 30, located in the bottom of the reservoir 3, and the nozzles 31 in the nozzle-plate 9, upon the objects on the tray 4. To force the material through said die-plate and nozzles I employ a plunger 32 which is adapted for vertical movement in the said reservoir. The plunger 32 is operated by means of racks 33 and gears 34 which mesh therewith, the said gears being carried by a shaft 35 rotatably mounted upon the upper end of the side plates 36 of the reservoir 3. As can be seen in Fig. 1, one end of the shaft 35 carries a gear 37 having in mesh therewith a pinion 38 carried by a stub shaft 39, which is suitably, rotatably supported upon the reservoir. Also upon the shaft 39 I mount a ratchet wheel 40, which has in engagement therewith a pawl 41 carried by the counter-bored end of an arm 42, which is loosely mounted upon the shaft 39. (See Fig. 8). The function of the arm 42 and pawl 41 is to advance the ratchet 40 step by step, by which means the pinion 38, gear 37 and shaft 35 are rotated. The rotation of the shaft 35 causes the gear 34 mounted thereupon to force the rack 33 and plunger 32 carried thereby downwardly, which action forces a certain amount of material through the openings 43 in the die-plate 30. To cause the arm 42 to rotate the ratchet 40 is the function of the arm 16 and block 17, which block is provided with a roller 43ª which engages the groove 44 in the arm 42. As the arm 16 rotates it causes the arm 42 to reciprocate, a portion of which reciprocation causes the pawl 41 to advance the ratchet 39. The remainder of the reciprocation of the arm 42 causes the said pawl to jump the teeth of the ratchet in preparation for future advancement, of the said ratchet.

One of the chief features of my improved depositing machine is that the pressure upon the material in the reservoir is relaxed immediately after the required amount has been forced through the die-plate, the said relaxation being accomplished by means of a disk 45 carried by the shaft 15. The disk 45 is provided with a certain fixed number of teeth 46, which, at about the time that the plunger 32 reaches the limit of its downward movement, mesh with the teeth of the gear 37, thereby rotating the said gear oppositely to the direction in which it has been rotated, thereby causing the plunger 32 to rise slightly. When the parts are in the position illustrated in Fig. 1, the arm 42 will be returning and the pawl 41 will jump the teeth of the ratchet 40. At about the time that the arm 42 commences to return after having advanced the ratchet 40, the tooth 47 of the group 46 on the disk 45 will engage a tooth on the gear 37, thereby reversing the movement of the gear 37, which reversal of movement will cause the plunger 32 to rise. It will be obvious that during the movement above described, the ratchet 40 and arm 42 will travel in the same direction, the ratchet, however, traveling slightly slower. The reverse movement of the gear 37 will continue till all of the teeth of the group 46 on the disk 45 have passed through their intermeshing teeth on the gear 37. At about the time that the last tooth of the

group 47 clears the gear 37, the end 26 of the lever 27 will cause the clutch mechanism to release, thereby stopping the rotation of the shaft 15.

A further feature of my improved depositing machine consists in tilting the plunger 32 when said plunger has been carried upwardly and out of the reservoir 3. The raising of the plunger 32 is accomplished by means of a hand-wheel 48. To raise the plunger 32 by means of the hand-wheel 48 it is necessary to withdraw the pawl 41 from the ratchet 40. When the plunger 32 has been carried upwardly to the extent of its movement, as shown in Fig. 1, by means of the actuation of the gear 37 by the hand-wheel 48, the lug 49 on the said plunger 32 will contact with a bracket 50, which is pivotally mounted on the shaft 35 and which supports a rack 33, there being two of such brackets on said shaft 35, as can be seen in Fig. 2. When the lug 49 comes in contact with the bracket 50, further upward movement on the part of the plunger 32 will cease. A continued rotation of the shaft 35 will, however, tilt the plunger 32 upwardly, as shown in Fig. 4, at which time the reservoir may be refilled. The tilting of the plunger 32 not only allows for the refilling of the reservoir, but prevents any material that may have stuck to the plunger from dropping on the floor or parts of the machine, as the said plunger is never carried away from the reservoir and any drippings therefrom will fall back into the reservoir.

A further feature of my invention comprises a means for regulating the flow of material from the reservoir through the die-plate and nozzle-plate. To accomplish this, I slidably mount the nozzle-plate 9 upon the die-plate 30, as shown in Fig. 2, the said die-plate being provided with a guideway 49ª, in which the edges of the said nozzle-plate fit, the latter being retained in position by means of strips 50ª. As will be seen in Figs. 5 and 6, the die-plate 30 is provided with lugs or seats 51 which contact with seats 52 on the nozzle-plate 9, said contacting seats forming a tight joint. When the material is of the proper consistency, the openings 43 in the die-plate 30 and openings 53 in the nozzle-plate 9 will be in alinement, as shown in Fig. 5. Should, however, the material be a little too thin and flow too freely, I move or slide the nozzle-plate 9 in such manner as to restrict the openings through which the material is forced. Fig. 6 illustrates the nozzle-plate in its shifted position to partly cover the openings 43 in die-plate 30 and thus restrict and throttle the said openings 43. It will be seen that the plate 9 carries removable nozzles 54, the size of the openings 55 of which determines the quantity of material deposited.

After a tray 4 has been placed upon the slidable support 6 therefor, I move the said support forwardly, by means of a lever 56 and link 57, the brackets 7 being provided with angularly disposed slots 58, in which pins 59, carried by the tray-support 6, fit. When the support 6 is carried forwardly by means of the actuation of the lever 56, the said support will travel upwardly, due to the angularly disposed slots 58, and carry the articles upon the tray toward the nozzles 54. The movement of the support 6 will be sufficient to cause the articles upon the tray to come to rest directly under the nozzles 54. After the material has been deposited, the tray may be drawn outwardly and away from the nozzles by reversing the movement of the lever 56. The tray can then be removed from the support. The amount of material deposited by the downward movement of the plunger 32 may be regulated or changed by shifting the block 17, as it will be quite apparent that the nearer the block 17 is to the center of the shaft 15, the less the downward movement of the plunger 32. In other words, should I desire to deposit a small quantity of material, I would move the block 17 toward the center of the shaft 15 by means of the adjusting screw 18. The object of relaxing the pressure of the plunger upon the material is to prevent any material from being forced through the openings in the die-plate, after the said plunger has come to rest. When the pressure upon the plunger has been relaxed, the weight of the material in the reservoir will not be sufficient to cause the said material to flow by gravity through the openings, as the said material will be somewhat pasty and thick. It is when the material is too thin that it becomes necessary to throttle the openings in the die-plate by means of the slidable nozzle-plate.

By means of my improved mechanism, I am able to produce a depositing machine which is highly efficient and which may be intermittently operated by means of a continuously moving driving element.

From the foregoing description it will be apparent that the plunger is forced downwardly to a predetermined extent and then slightly raised in order to cause a relaxation of pressure during one revolution of the shaft which operates it. The said raising of the plunger is accomplished automatically.

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

1. In a depositing machine, a reservoir, a plunger adapted for reciprocation therein, gears adapted to operate said plunger, an operating shaft adapted to operate said gears, a disk carried by said shaft, teeth carried by said disk adapted to mesh with

one of the plunger-operating gears during a portion of the rotation of said operating shaft.

2. In a depositing machine, a reservoir, a plunger adapted for reciprocation therein, a gear adapted to actuate said plunger, a ratchet adapted to actuate said gear, a reciprocating arm, a pawl carried by said arm adapted to actuate said ratchet, an operating shaft, an arm carried by said operating shaft, a block adjustably mounted on said arm, means carried by said block adapted to actuate said reciprocating arm, and means adapted to relax the pressure of said plunger on the material in said reservoir, at a predetermined point.

3. In a depositing machine, a reservoir, a plunger adapted for reciprocation therein, a gear adapted to actuate said plunger, a ratchet adapted to actuate said gear, a reciprocating arm, a pawl carried by said arm adapted to actuate said ratchet, an operating shaft, an arm carried by said operating shaft, a block adjustably mounted on said arm, means carried by said block adapted to actuate said reciprocating arm, a disk carried by said operating shaft and teeth carried by said disk adapted to mesh with one of the plunger-actuating gears at predetermined intervals.

4. In a depositing machine, a reservoir, a plunger adapted for reciprocation therein, a gear adapted to actuate said plunger, a ratchet adapted to actuate said gear, a reciprocating arm, a pawl carried by said arm adapted to actuate said ratchet, an operating shaft, an arm carried by said operating shaft, a block adjustably mounted on said arm, means carried by said block adapted to actuate said reciprocating arm, and means carried by said actuating shaft adapted to slightly raise said plunger after said plunger has reached a predetermined point of its downward movement.

5. In a depositing machine, a reservoir, a plunger adapted for reciprocation therein, a gear adapted to actuate said plunger, a ratchet adapted to actuate said gear, a reciprocating arm, a pawl carried by said arm adapted to actuate said ratchet, an operating shaft, an arm carried by said operating shaft, a block adjustably mounted on said arm, means carried by said block adapted to actuate said reciprocating arm, means carried by said actuating shaft adapted to slightly raise said plunger after said plunger has reached a predetermined point of its downward movement, and means adapted to cause said operating shaft to rotate intermittently.

6. In a depositing machine, a reservoir, a plunger adapted for reciprocation therein, a rack carried by said plunger, an operating shaft, a gear carried by said operating shaft adapted to mesh with said rack, and a bracket pivotally mounted on said operating shaft adapted to support and keep said rack in mesh with said gear.

7. In a depositing machine, a reservoir, a plunger adapted for reciprocation therein, a rack carried by said plunger, an operating shaft, a gear carried by said operating shaft adapted to mesh with said rack, and means for keeping said rack in mesh with said gear, said means being adapted to permit said rack to move radially around said shaft after said plunger has been raised to the limit of its upward movement.

8. In a depositing machine, a reservoir, a plunger, means adapted to force said plunger into said reservoir step by step, means adapted to automatically slightly raise said plunger at the conclusion of each step by step advancement thereof, and means adapted to raise said plunger out of said reservoir by continuous movement after said plunger has reached the limit of its downward movement in said reservoir.

9. In a depositing machine, a reservoir, a plunger adapted for reciprocation therein, means adapted to advance said plunger into said reservoir step by step, means carried by said plunger advancing means adapted to be disconnected from its coöperating mechanism, and means adapted to raise said plunger out of said reserovir, by a continuous movement when said step by step advancing means has been disconnected.

10. In a depositing machine, a frame, a vertically movable support carried by said frame, pins carried by said support, a reservoir, and a tray-holder slidably mounted on said support, the tray-holder provided with angularly disposed slots adapted to receive the pins on said vertically movable support.

Signed at New York city, N. Y. this 6th day of June, 1911.

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