

(No Model.)

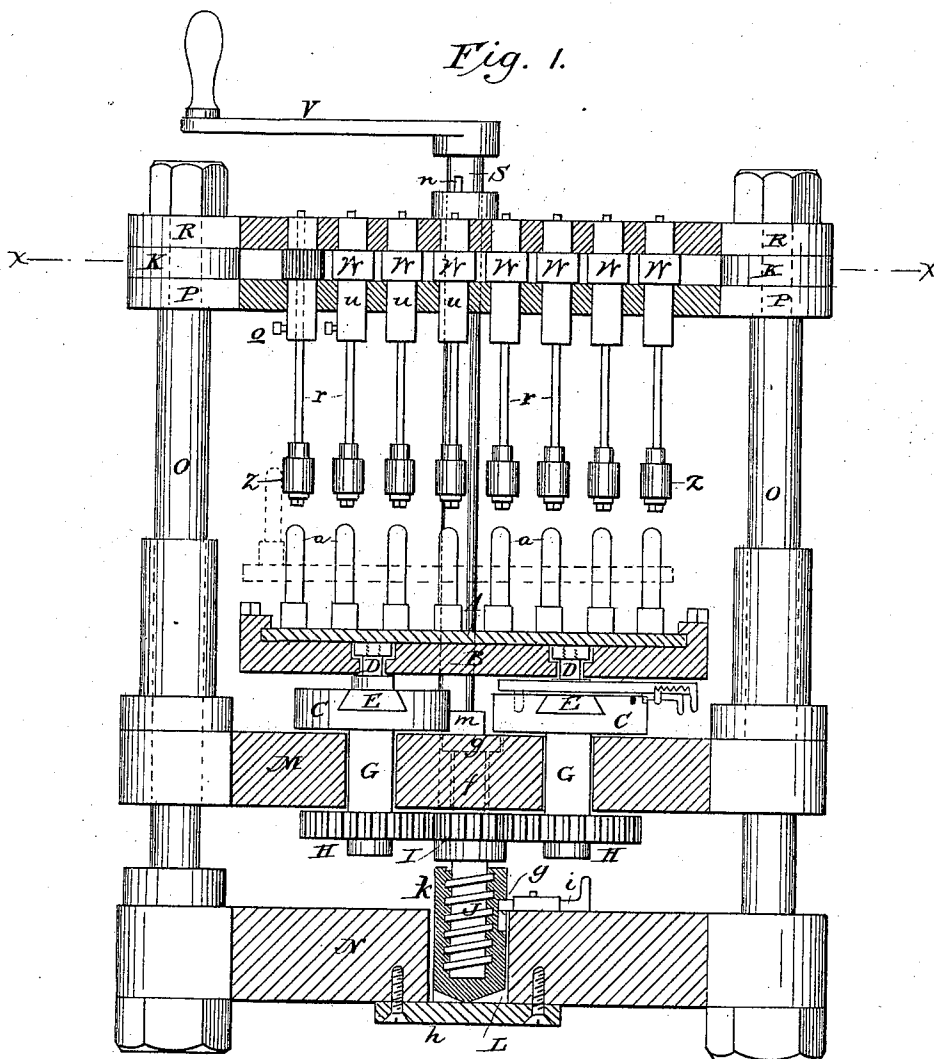
2 Sheets—Sheet 1.

H. H. TAYLOR.

CAPSULE MACHINE.

No. 323,753.

Patented Aug. 4, 1885.



Attest:
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

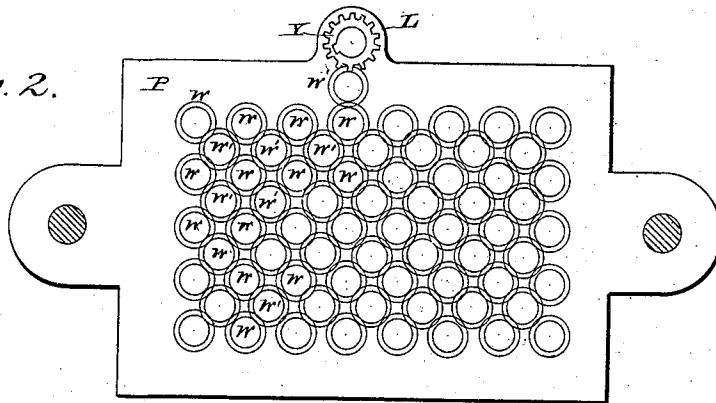


Fig. 3.

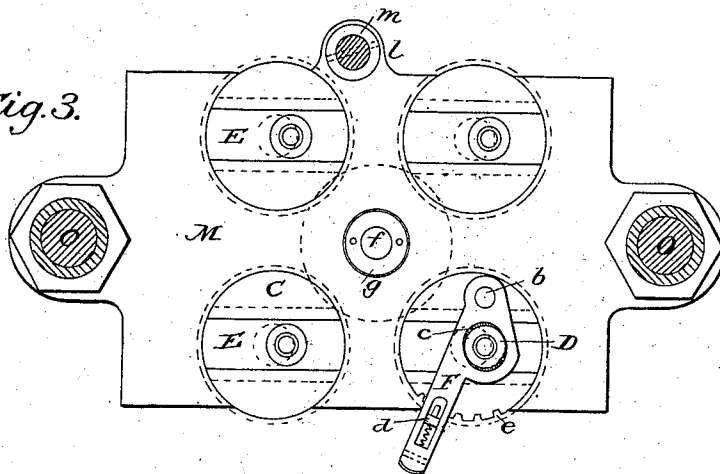
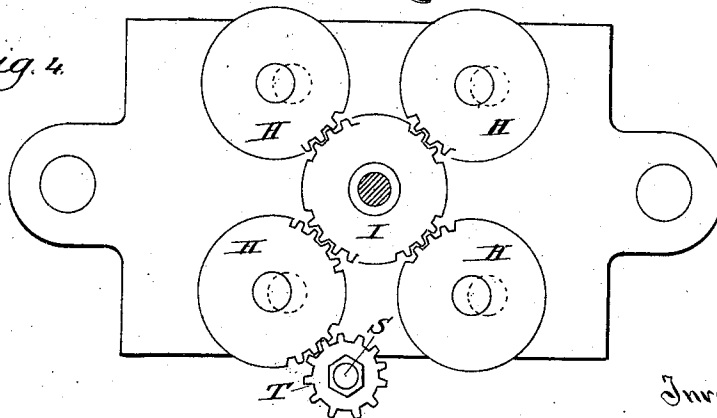


Fig. 4.



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Inventor:
Harrison H. Taylor.

By *[Signature]* *[Signature]*

[Signature]

UNITED STATES PATENT OFFICE.

HARRISON H. TAYLOR, OF DETROIT, MICHIGAN, ASSIGNOR TO FRED A. HUBEL, OF SAME PLACE.

CAPSULE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 323,753, dated August 4, 1885.

Application filed December 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, HARRISON H. TAYLOR, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful
5 Improvements in Greasing Machines for Capsule-Molds; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this
10 specification.

This invention relates to certain new and useful improvements in machines for greasing or lubricating gelatine capsule-molds; and the machine hereinafter described is specifically
15 designed to lubricate or grease the mold-pins upon which gelatine capsules are formed by dipping by mechanical means.

The invention consists, first, in the employment of a cylindrical swab, which forms the
20 medium for holding the lubricant; second, in the peculiar manner by which the pins are evenly coated by frictional contact with the swabs; third, in the mechanical devices for raising and lowering the mold-plate when desired;
25 fourth, in the mechanical devices for throwing the raising and lowering mechanism out of gear and keeping the mold-plate at any desired height; fifth, in the mechanical devices employed for giving to the mold-pins a reciprocating spiral movement;
30 sixth, in the combination of the mechanical devices employed for giving to the mold-pins a reciprocating spiral movement simultaneously, and simultaneously therewith a rotary movement of the
35 swabs in an opposite direction.

The mechanical devices for giving to the mold-pins a movement in a circular orbit around the swabs has been described by me in a machine for cutting off gelatine capsules,
40 for which I have previously applied for Letters Patent, which application is now pending.

Figure 1 is an elevation of my machine with some portions thereof shown in vertical section. Fig. 2 is a horizontal section on the line
45 *xx* in Fig. 1. Fig. 3 is a top plan view of the plate with the crank-wheels journaled therein. Fig. 4 is a bottom plan view of the said plate with the gear-wheels journaled therein.

In the accompanying drawings, which form
50 a part of this specification, A represents a gelatine mold-plate of the usual construction provided with a series of mold-pins, *a*. B is a

table provided with the usual means for keeping the mold-plate in position thereon while the pins are being operated upon. Care crank-
55 wheels, each provided on top with a wrist-pin, D, which enters and carries the table B. E are slides, upon which the wrists D are secured, and whereby the throw of the crank can be varied. F is a lever, pivoted at *b*, Fig. 3, upon one of
60 the crank-wheels, the wrist-pin D passing through the slot *c* therein. *d* is a spring-bolt upon the free end of the lever F, and is adapted to be engaged with any one of the notches *e* upon the circumference of the cam-wheel. G
65 are vertical shafts, to the upper ends of which the cam-wheels are secured, and by means of which they are held in place upon the plate M. To the lower ends of these shafts are secured the gear-wheels H, meshing with a like
70 gear-wheel, I, Fig. 4, centrally secured between the gear-wheels H. The gear-wheel I is secured upon a shaft, *f*, the upper part of which forms the means of attaching it to the plate M, while its lower part is provided with
75 a screw-thread, J, which engages in a nut, K. The nut K is cylindrical and fits in a corresponding socket, L, in the bed-plate N, resting upon its rounding end upon the steel plate *h*. *g* is a notch in the nut *k*, and *i* a
80 latch adapted to engage therein. Vertically rising from the bed-plate N are the two posts O, which serve as guides for the plate M, and have secured upon their upper ends the
85 plates P and R, between which are interposed the rollers K. S is a vertical shaft, held in its vertical position by ears *l* upon the rear edges of the plates P and M, and supported upon the latter by a collar, *m*. To the
90 lower end of this shaft is secured a pinion, T, Fig. 4, which meshes with one of the gears H; and to the upper end of it is secured the ordinary crank-handle V. *u* are a series of shafts journaled vertically through the plates R and
95 P. Upon each shaft, in the space between the two plates, are secured the pinions W, Fig. 1, which, by means of intermediate pinions, W', are adapted to rotate simultaneously and in the same direction, deriving their motion from
100 a pinion, Y, upon the shaft S. *n* is a spline on said shaft, engaging into a corresponding groove of the pinion Y. The shafts *u* are centrally bored out to receive the shanks *r* of the swabs Z, which are adjustably secured therein

by means of the set-screws *o*. The swabs *Z* are made in cylindrical shape, of some soft elastic and porous material—such as felt, for example—adapted to receive and hold in its pores a quantity of grease. These swabs are securely attached to the shanks *r*, which may be more or less elastic.

The operation of the machine, with the parts in the position shown in Fig. 1, is as follows: By turning the crank-handle one way the shaft *S*, by means of the pinion *Y*, will impart a rotary motion to all the swabs *Z*, and by means of its lower pinion, *T*, it will impart, through the medium of the gear-wheels *H* and crank-wheels *C*, a crank-motion to the plate *B* and mold-plate *A*, giving to the mold-pins a movement in a circular orbit. Simultaneously with this movement the screw *J* will also be rotated, and as the nut *k* is held fixed by the latch *i* the screw *J* will raise the plate *M*, with all the parts supported upon it, carrying the mold-pins *a* up between the swabs *Z* and in a spiral path around the same; and if the throw of the cranks *D* is now properly adjusted, by means of the lever *F*, the pins *a* and swabs *Z* can be made to rub upon each other, which, when the swabs are properly greased, will leave a slight and even coating of grease upon these cylindrical parts of the pins which come in contact with the swabs. If the motion of the crank-handle is reversed, the plate *M* will be carried down with the pins, describing a descending spiral path, and the swabs *Z* revolving around their own axis. The movement of the swabs and pins is so arranged as to be in directions opposite to each other, so as to prevent any unequal wear upon the swabs and keep their whole surface always evenly saturated.

If the latch *i* is withdrawn from its engagement with the notch *g* upon the nut *k* at any position of the plate *M*, the raising or lowering movement of the same is immediately suspended, and the plate *M* will be kept in the same stationary position. This is practiced when only very small portions of the pins have to be greased. The plate *M* is then sufficiently raised to bring the desired part of the pins in contact with the swabs; then the latch *i* is withdrawn, thereby keeping the plate *M* at its adjusted height, and the mold-plates are then simply slid on or off the plate *B* without disturbing the vertical adjustment of the plate *M*, and the pins *a* will only describe a circular orbit around the swabs.

The spiral paths which the pins describe during the raising and lowering of the mold-plate will not be entirely coincident, owing to the lost motion of the parts; but this is only an additional advantage. To get the swabs properly saturated with grease, all there is to be done is to dip the pins of a mold-plate in warm grease and have the swabs take it off.

The object of my invention is to simultaneously grease all the mold-pins which are carried in one plate by causing a corresponding number of greased swabs to operate upon said

pins. The operation is therefore analogous to the operation of cutting the capsules formed on said pins; and the principle of this invention is precisely that of a cutting-machine invented by me, greased swabs being substituted for the cutters of the cutting-machine, though I have added certain mechanical details by which the motion of the pins and swabs can be somewhat varied from the motions of the corresponding parts of the cutting-machine.

Although I have only shown and described mechanism by which the pins can be rotated around the swabs, it is a well-known mechanical equivalent to rotate the swabs around the pins, and this can readily be done by any person skilled in the art by simply setting the shanks *r* which carry the swabs *Z* eccentrically in the shafts instead of concentrically, just as the cutters shown and described in Re-issued Patent No. 6,440, granted to F. A. Hubel, October 1, 1878, are set. In this case the crank-motion which causes rotation is only transferred from the bed-plate *B* to the swabs *Z*.

What I claim as my invention is—

1. In a machine for greasing capsule mold-pins, the combination of the following elements, viz: a plate carrying a series of greased swabs at intervals corresponding to the intervals between the mold-pins, a plate carrying a series of mold-pins, a bed adapted to support the mold-plates, and mechanism adapted to move said bed horizontally and vertically, substantially as and in the manner described and shown.

2. The combination, with a series of greased swabs mounted on shafts which are attached to pinions whereby said swabs can be rotated, of a plate carrying mold-pins, a bed adapted to carry the mold-plate and mounted upon cranks secured in a plate mounted upon a screw-shaft, mechanism for simultaneously actuating the pinions which carry the swabs, the cranks which carry the bed-plate and the screw-shaft, and mechanism for throwing the screw-shaft in and out of gear at will, substantially as described.

3. A machine for greasing capsule mold-pins, consisting of a series of greased swabs held at intervals corresponding to the intervals between the mold-pins, a mold-plate resting on a bed, provided with means for raising and lowering the same, and mechanism, substantially as described, adapted to rotate the mold-pins around the corresponding swabs, substantially as shown and described.

4. In a capsule-greasing machine, the combination of a series of greased swabs hung on spring-arms and arranged at regular intervals, a plate carrying mold-pins arranged at like regular intervals, and a bed-plate adapted to support said mold-plate and supported on one or more cranks, whereby each mold-pin can be rotated around the corresponding swab, substantially as and for the purposes set forth.

5. In a machine for greasing capsule-molds,

the combination with the swabs and molds, of the screw J, nut k, and latch i, substantially as described.

5 6. In a machine for greasing capsule-molds, the combination of devices for raising and lowering the mold-plate, consisting of the shaft S, pinion T, intermediate gear, H, gear I, screw J, and nut k, with the swabs and devices for operating them, substantially as described.

10 7. In a greasing-machine for gelatine-molds, the shaft S, provided with crank-handle V, and the two pinions T and Y, for the purpose of imparting a simultaneous motion to the

swabs and to the mold-pins, substantially as described.

15 8. In a machine for greasing gelatine-capsule molds, the combination of a mold supported in a plate, a swab adapted to hold the grease, and mechanism for causing the mold to move vertically while it is moving around 20 the swab, all substantially as described.

HARRISON H. TAYLOR.

Witnesses:

H. S. SPRAGUE,

E. J. SCULLY.