

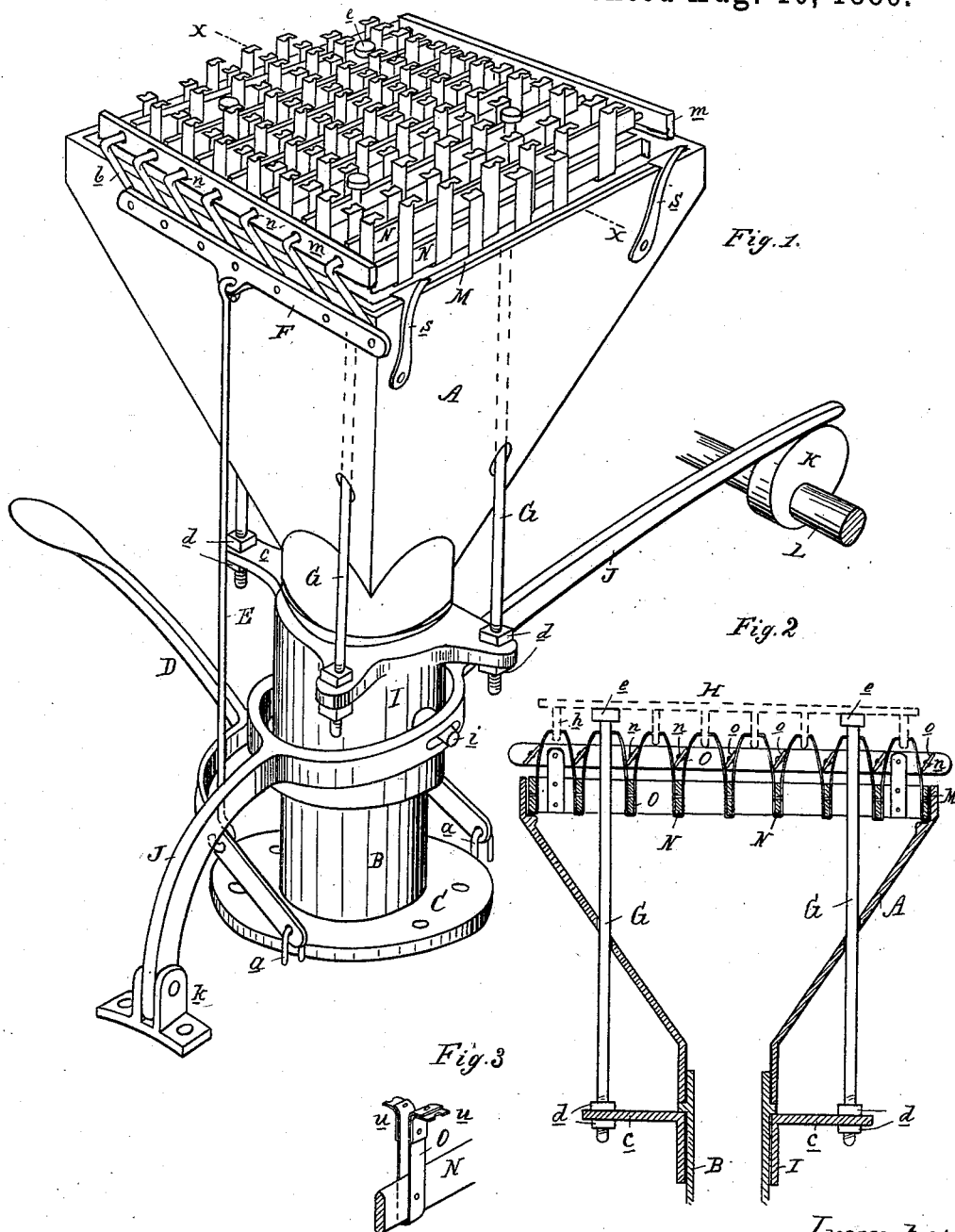
(No Model.)

J. KREHBIEL.

CAPSULE STRIPPING MACHINE.

No. 347,274.

Patented Aug. 10, 1886.



Attest:
John Schuman.
W. Sprague

Inventor:
John Krehbiel.
by his Atty
W. B. Sprague

UNITED STATES PATENT OFFICE.

JOHN KREHBIEL, OF DETROIT, ASSIGNOR TO GEORGE W. BULLIS, OF ANN ARBOR, MICHIGAN.

CAPSULE-STRIPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 347,274, dated August 10, 1886.

Application filed November 16, 1885. Serial No. 153,002. (No model.)

To all whom it may concern:

Be it known that I, JOHN KREHBIEL, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Capsule-Stripping Machines; 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 specification.

This invention relates to certain new and useful improvements in stripping-machines for the purpose of removing the gelatine capsule from the mold-pin upon which it is formed, leaving upon the pin the "burr" or end of such capsule which has been cut off to make such capsule of the length required, it being understood that the capsule is always made or molded longer than the finished capsule is required to be, and must be reduced in length before being removed from the mold-pin.

The invention consists in the peculiar construction of the various parts and their combinations and operations, as more fully hereinafter described.

Figure 1 is a perspective view of my improved device for stripping capsule mold-pins. Fig. 2 is a vertical sectional detail of the same. Fig. 3 is an enlarged and detached detail.

In the accompanying drawings, A represents a hopper supported upon a suitable standard, B, which I preferably make of a hollow pipe, communicating with the hopper to form an outlet therefrom, such standard being in turn supported on a suitable base, and secured thereto by bolts passing through the collar C at the bottom of the standard. Lugs or hooks *a* are designed to be secured to the floor or said collar upon opposite sides of such collar. D is a lever and treadle attached to such hooks. E is a rod connecting said treadle with the crank-plate F, which operates the cranks *b*, which are connected with it for that purpose.

I is a sleeve upon the standard B, and ears *c* or a flange is formed upon the upper end of it, so that four rods, G, equidistant from each other, can be secured in a vertical position, in which they are adjustable, by means of the two nuts, *d*, on each rod, one being above and the other below the ears or flange, as shown in

Figs. 1 and 2. The upper ends of these rods terminate in flattened heads *e*, upon which the capsule mold-plate H, carrying the mold-pins *h*, rests when the device is in use. Pivot-pins or bearings *i* are formed or secured on opposite sides of the sleeve I, which engage with the lever J, one end of which is pivotally secured to the floor, as shown at *k*, while the free end thereof rests upon a cam, K, which is secured upon and revolves with a shaft, L, for the purpose of raising and lowering the rods G at regular intervals.

M is a frame, made to fit within the mouth of the hopper, with two of its sides, *m*, projecting above its other two sides to form bearings at each end for the rock-shafts *n*, to which the cranks *b* are secured. Extending across this frame, and parallel with the rock-shafts *n*, and equidistant from each other, and in parallel rows, are the U-shaped springs O, the free ends of which project above the bars N, to which they are attached, and, as clearly shown in Fig. 3, are grooved out upon a segment of a circle and turned down until the bent-over portions stand at right angles to the vertical parts of such springs. The shafts *n* are journaled immediately over the bars N, and upon each one of the shafts are secured spreader-plates *o*, by means of which the ends of the springs are forced outwardly from each other and compelled to grasp or embrace the mold-pins *h*. It will be noticed that, while these springs are in pairs, the operation of the spreaders is such that one part of one spring forms a part of a pair of jaws, and one part of another adjacent spring forms the other part of the pair of jaws, and that whatever material is removed from the mold-pins will fall into the hopper, while if the same spring were to perform this service the capsule removed would fall onto the bar to which the spring is attached.

The frame M is held in place in the mouth of the hopper, by means of spring-catches *s*, or other suitable devices that will allow said frame to be easily removed and replaced by another of the same size, but with the springs O and the parts which actuate them arranged at different intervals, as the manufacture of different sizes of capsules may require. As

the grasping ends of the springs may wear, in order to save the necessity of putting in new springs entirely, detachable grasping ends or jaws *u* may be employed, as very clearly shown in Fig. 3.

The capsules upon the mold-pins *h* being sufficiently hard, and having been cut to a uniform length by any of the known devices adapted to the purpose, a burr is formed by the cut between it and the plate *H*, from the face of which the mold-pins project, and it is necessary to shove or push this burr away from the cut end of the capsule before the latter can be removed from the mold upon which it is formed, or the device employed for that purpose would pull off both burr and capsule and allow them to drop into the hopper together, which would demand much labor to separate them preparatory to marketing the capsules. The capsules having been cut, the plate of molds is laid bottom up on the bearing-rods *G*, which, by the rotation of the cam *K*, actuating the lever *J* and sleeve *I*, are raised above the top of the spring-jaws *O*, the pins projecting down into the spaces between the bars *N*. The continued rotation of the cam now lowers the plate and its pins until the burr is opposite the gripping ends of the springs. Now the operator quickly steps on the treadle *D*, which causes the jaws to grasp the burr, and a little further rotation of the cam drops the plate and pins a little more, thereby pushing such burr back from the cut and toward the plate carrying the pins. The continued rotation of the cam (the pressure upon the treadles being meantime relieved, thereby causing the jaws to relinquish their hold) raises the plate with the burrs on the pins, so that it may be removed and replaced by a fresh one. The cam is run at a sufficient velocity to enable this work to be accomplished in one rotation. To remove the capsules from the mold-pins a reverse of the motions is necessary, so that the jaws will grasp the mold-pins just above the cut and against the cut

end of the capsule just before the rotation of the cam raises the mold-plate.

What I claim as my invention is—

1. In combination with a hopper, a detachable frame removably secured in the mouth of said hopper, such frame carrying in rows spring-jaws, and spreaders which will actuate such jaws in pairs, substantially as and for the purposes described.

2. In a device for the purposes described, a series of vertically-adjustable bearing-rods to support the plate of molds and a vertically-reciprocating frame constructed to raise and lower such mold-plate, substantially as and for the purposes specified.

3. In a device for the purposes described, and in combination with a series of vertically-adjustable bearing-rods, a lever actuated by a rotating cam and actuating such bearing-rods, substantially as and for the purposes set forth.

4. In a device for the purposes described, the frame carrying bars for supporting spring-jaws equidistant from each other and in rows, in combination with rock-shafts in the same vertical plane with said bars, and carrying spreaders, each rock-shaft having a crank, and all the cranks simultaneously actuated by a treadle and intermediate mechanism or connections, substantially as and for the purposes specified.

5. In a device for the purposes described, the combination of the following elements: a hopper supported upon a standard, a detachable frame in the mouth of said hopper, and carrying spring-jaws, rock-shafts and spreaders actuating said jaws, a treadle actuating such rock-shafts, bearing-rods vertically adjustable, actuated by a lever, which in turn is actuated by a revolving cam, the parts being constructed, arranged, and operating substantially as and for the purposes set forth.

JOHN KREHBIEL.

Witnesses:

H. S. SPRAGUE,
JOHN SCHUMAN.