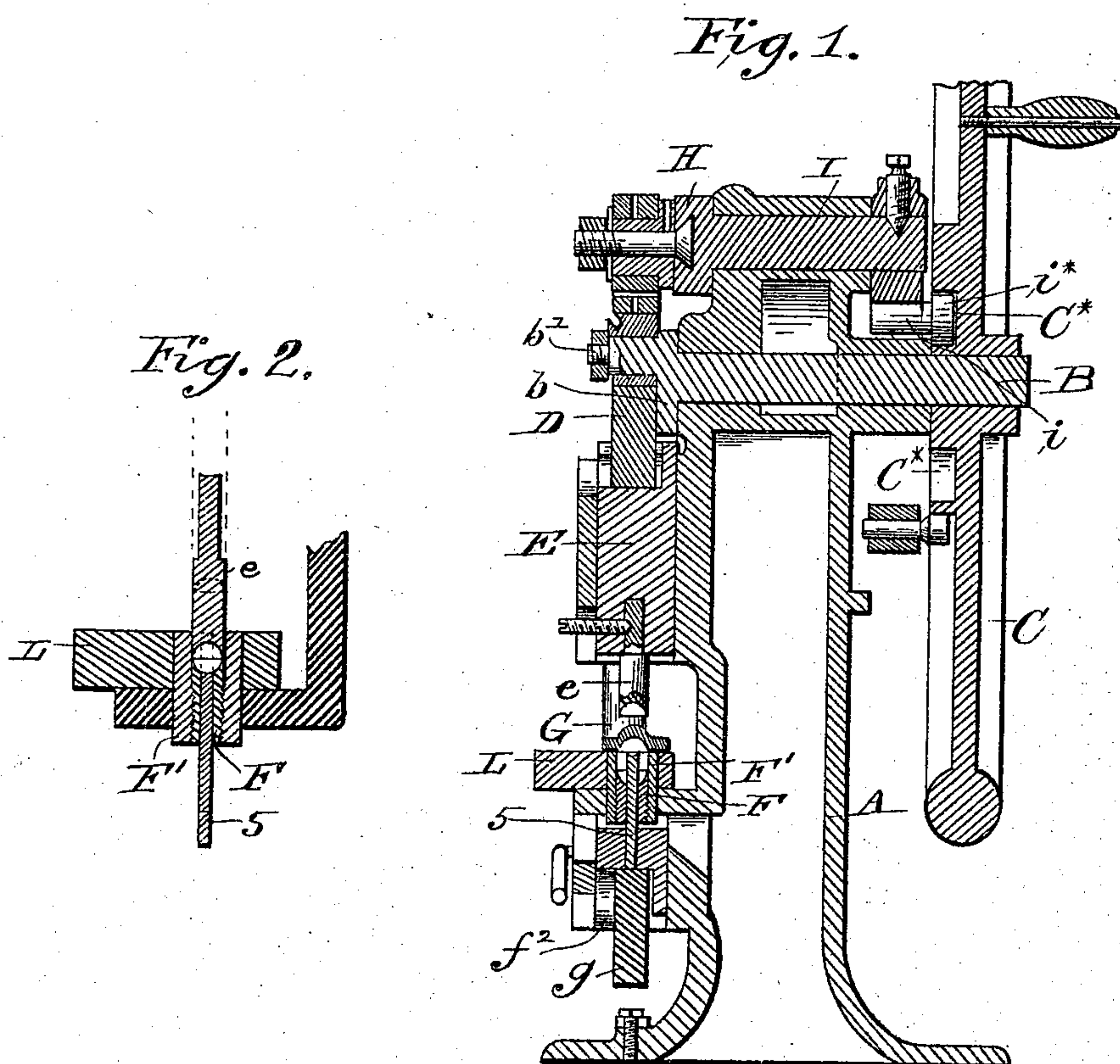


(No Model.)

A. G. BROWN.
PILL MACHINE.

No. 519,525.

Patented May 8, 1894.



Witnesses:

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Inventor.

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UNITED STATES PATENT OFFICE.

ARTHUR G. BROWN, OF ELMIRA, NEW YORK.

PILL-MACHINE.

SPECIFICATION forming part of Letters Patent No. 519,525, dated May 8, 1894.

Application filed January 4, 1894. Serial No. 495,719. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR G. BROWN, a citizen of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Pill-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to an improvement in machines for compressing pills, and has reference particularly to a device for ejecting a pill from the machine after it is compressed.

Heretofore, in a well known class of machines used to compress granular or pulverized substances into the form of a tablet or pill, it has been necessary to form the pill in a tablet shape more or less flat, or of a slightly double convex form, in order to properly eject it from the machine by the action of a hopper, which both feeds the machine with the material to be compressed, and sweeps the pill from off the bed on which it has been compressed, which is the ejecting die. In such case owing to the operation of the sliding hopper, containing a space but for a single charge, and of the position of the lower ejecting die, when the pill is compressed, its upper surface forming the bottom of the bed die, the pill if made spherical so as to extend much above the bed die would be cut off by the action of the sliding hopper.

The object of my invention is, while shaping the dies to form a full spherical pill, to so raise the pill after it is formed above the surface of the bed die, as to permit such pill to be discharged by the hopper device while at the same time preventing it from being cut thereby. For this purpose I raise the bed plate on which the hopper slides, and to which the pill is raised and from which it is swept off, a distance above the upper surface of the lower bed die, and carry up the pill to such bed plate by means of an ejector working up and down through and above the center of the lower stationary die.

My invention is illustrated herein, as ap-

plied to a well known form of pill making machine, and consequently only so much of such machine is shown and described as discloses the application and operation of my improvement.

Figure 1 is a central vertical elevation, in section, of such a machine, and Fig. 2 a sectional detail.

The parts of such a machine consist of the framework A, in which is mounted a driving shaft B, carrying a fly wheel C, by which wheel the shaft B is rotated to operate the machine. An upper or compressor die, *e*, is carried at the lower extremity of a plunger E, which plunger is given a vertically reciprocating movement from the driving shaft by means of a link or pitman D, which in turn is connected by a wrist pin *b'* to a crank wheel *b* carried on the driving shaft.

At this point the parts constituting my invention may be properly described.

F is a lower adjustable die set into a tubular casing F'. This die is stationary within its casing when set for operation, and is adjustable therein, so as to be fixed at any desired distance relative to the upper moving die (so as to control the amount of space between the two dies into which the material is fed and to thus regulate the size of the pill) by being externally screw threaded to engage with the internal threads on said casing. The upper extremity of this die is cut out to form a half circular face to correspond with a half circular face on the die *e*. The casing, F', is set through a bed plate L, with its upper end flush with said plate. The upper plunger die *e*, is arranged to slide down to the casing, F', and until its outside rim meets the corresponding part of the lower die F, when a perfect spherical cavity is formed.

5 is an ejector working up and down through the center of die F, and having its upper extremity cut out to correspond to the rounded contour of the lower portion of a pill, as well as the concave surface of the bottom of the lower die, F. When the pill is being formed this upper face of the ejector is flush with and forms the center part of the bottom surface of the lower die. The ejector 5 is raised and lowered as follows: G is a pitman the upper end of which is pivoted to a rocker H, which is connected to a rock shaft,

I, and its lower end provided with a knob, *g*, held and moving in a cylindrical seat, *f*², in the frame of the lower bed die. The lower end of the ejector 5 rests on this knob. An oscillatory up and down movement is imparted to the pitman, *G*, and consequently the ejector, by the oscillation of the rock shaft, *I*, which is accomplished by a rocker *i*, applied to the rear end of said rock shaft, and provided with a friction roll, *i*^{*}, which is adapted to travel in a cam way of a cam, *C*^{*}, connected with the driving fly wheel, *C*. After the rounded pill is compressed by the moving down of the upper plunger on the lower stationary plunger, as shown in Fig. 2, the ejector 5 is carried up through the lower plunger, carrying the pill with it until the pill is in a line with the bed plate, *L*, when the sliding hopper, or other suitable means, moving laterally on said bed plate, sweeps off the pill into a proper receptacle.

Having thus described my invention, what I claim is—

1. In a machine for forming pills by compression, the combination with an upper die, and means for reciprocating the same, of a lower stationary die, the compressing faces

of said dies being of spherical form to make a round pill, a reciprocating ejector, and means for carrying the said ejector up and down through the said lower die, the upper end of said ejector cut out to correspond and be flush with the concavity of the lower die, and a perforated bed plate *L* above the top of said lower stationary die, on the line of which plate the pill is raised by the said ejector and out of the said lower die, substantially as described.

2. In a machine for forming pills by compression, the combination with an upper die and means for reciprocating the same, of a lower stationary bed die and a cylindrical casing for said lower die, the said casing internally screw threaded and the said bed die externally screw threaded, whereby the lower die may be adjusted and set in relative position to the upper die, substantially as described.

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

ARTHUR G. BROWN.

Witnesses:

T. R. MACAFEE,

C. F. STEIRSLY.