

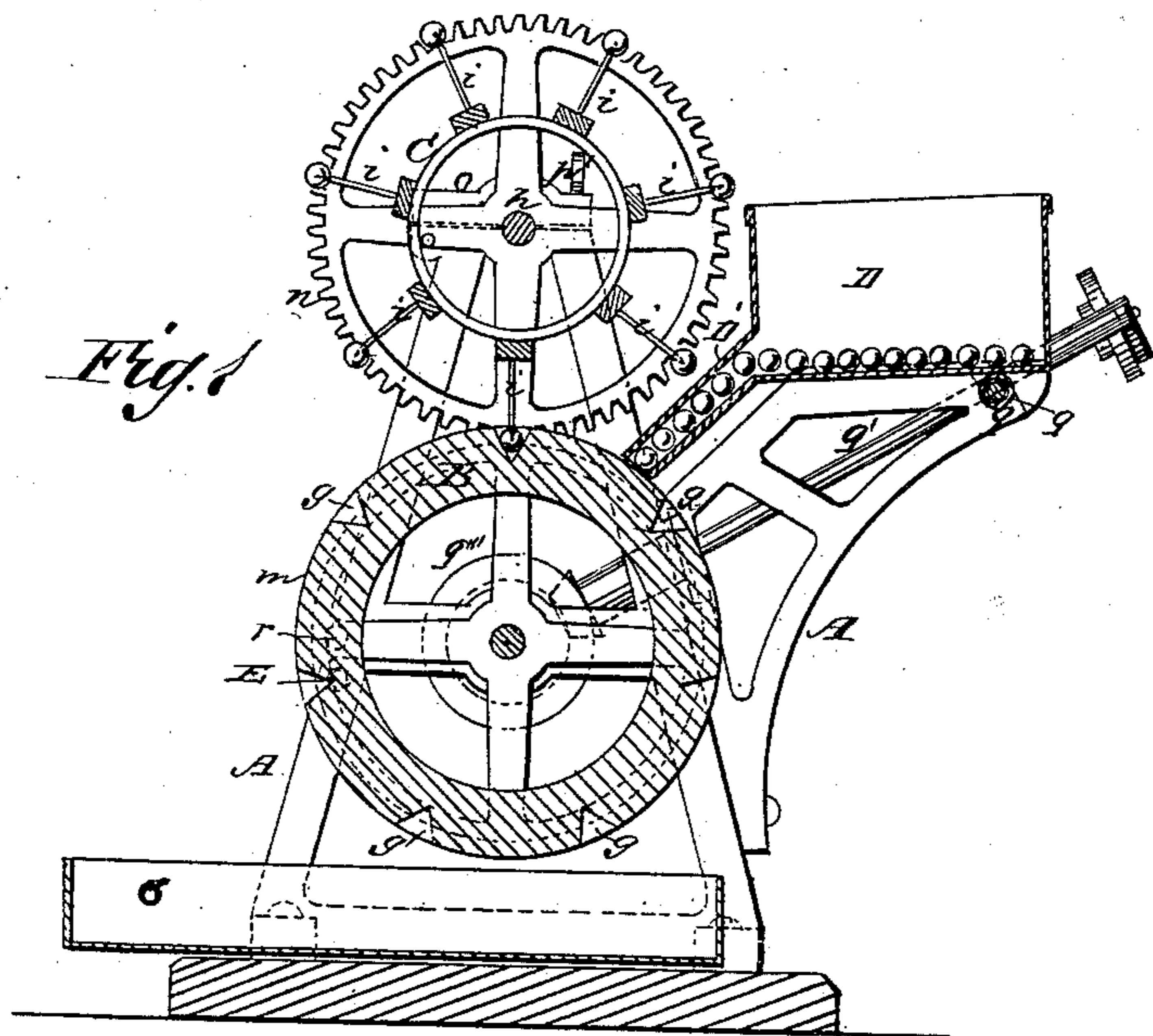
(No Model.)

G. F. CHAPPELL.

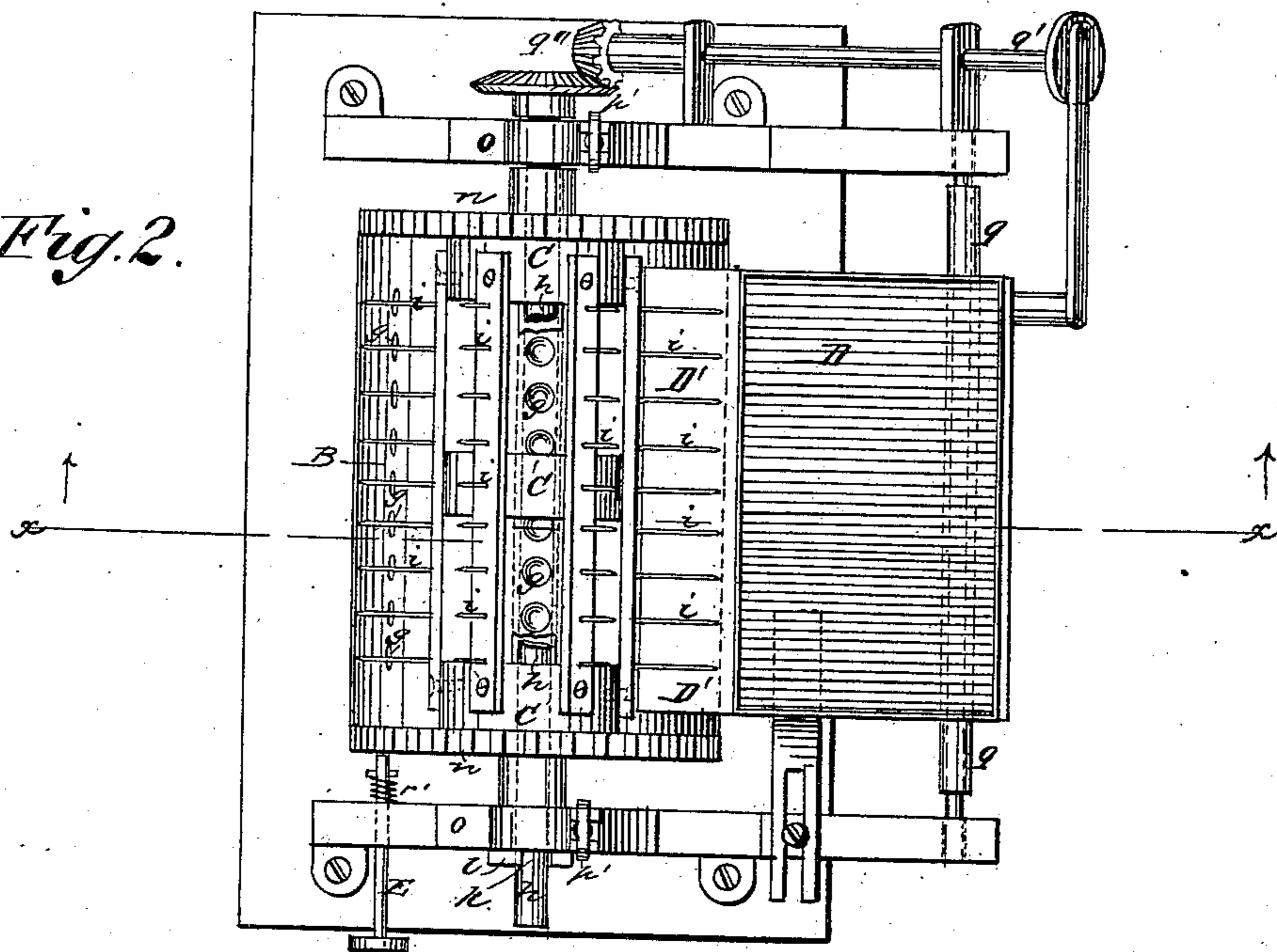
SELF FEEDING MACHINE FOR COATING PILLS.

No. 272,207.

Patented Feb. 13, 1883.

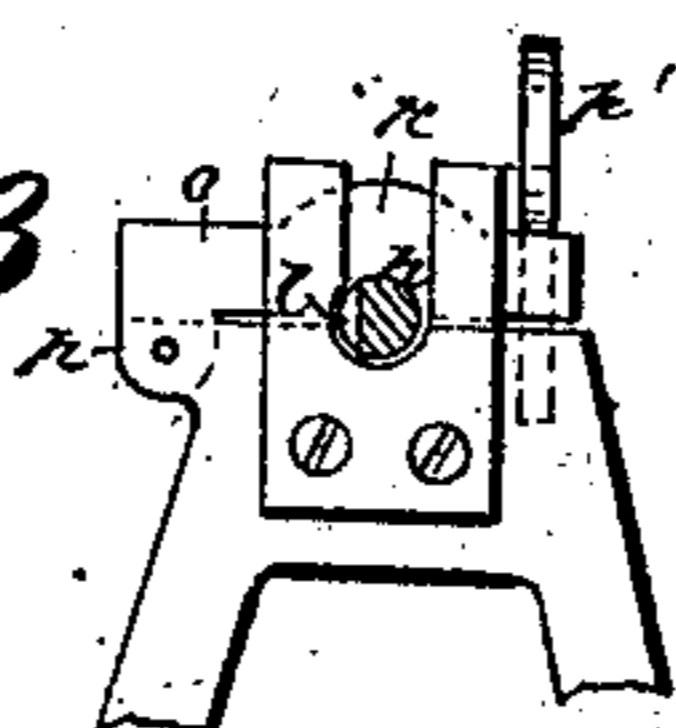


*Fig. 2.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE F. CHAPPELL, OF NEW YORK, N. Y.

## SELF-FEEDING MACHINE FOR COATING PILLS.

SPECIFICATION forming part of Letters Patent No. 272,207, dated February 13, 1883.

Application filed December 23, 1881. (No model.)

*To all whom it may concern :*

Be it known that I, GEORGE F. CHAPPELL, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Self-Feeding Machines for Coating Pills, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to an improved and self-feeding machine for coating pills.

Machines for coating pills have heretofore been composed of a revolving cylinder provided with radial needles, operated in connection with a sliding pill-tray having recesses corresponding with the needles, to pick up pills for the purpose of dipping them into a coating solution; but such machines are not capable of continuous operation, and the pills have to be placed by hand in the recesses of the sliding plate, which objections are overcome by my invention, wherein I provide means for automatically supplying pills to the cylinder which receives them.

25 My invention consists in certain combinations of the following instrumentalities, namely: a revolving cylinder having its periphery provided with pill-receiving sockets; a revolving carrier arranged removably above the cylinder; a hopper so arranged, in combination with the cylinder, that it feeds the sockets automatically; and a stop adapted to arrest the cylinder automatically at each complete revolution thereof, and in combination with the slotted bearings, hereinafter described, to hold the cylinder and carrier in their proper relation to each other, so that the hopper being filled with pills to be coated, they are thereby conducted to and deposited in the receiving-sockets of the cylinder, (each socket receiving a single pill,) whence they are picked up by the needles, as hereinafter more fully explained.

45 This invention is illustrated in the accompanying drawings, in which Figure 1 represents a vertical cross-section in the line  $x x$  of Fig. 2. Fig. 2 is a plan view with parts broken away to show pill-sockets. Fig. 3 is a detail view.

50 The letter A designates the machine-frame, composed of standards rising from a suitable base; B, the cylinder; C, the carrier; D, the hopper, and E cylinder-stop.

The cylinder B is fixed to a shaft having its bearings in the machine-frame, and in the periphery of the cylinder are formed sockets  $g$ , each adapted to receive a pill, the same being preferably arranged in rows extending lengthwise to the cylinder.

The carrier C is fixed to the shaft  $h$ , having its bearings in the machine-frame in a vertical plane with the cylinder-shaft. This carrier consists of a suitable number of longitudinal bars or strips of metal or other suitable material, into which the needles are fixed. These bars are secured to collars cast upon or otherwise firmly secured to and projecting from the planes of the upper gear-wheels. Intermediate wheels are firmly fixed to the shaft to support these bars, and thus prevent them from being bent or otherwise disarranged.

75 The needles  $i$  register with the cylinder-socket  $g$  in the revolution of the cylinder and carrier, and to cause such registration I have adopted the following means: I provide both standards of the machine-frame with a vertical slot,  $k$ , open at the top and having at its upper end a width less than the diameter of the carrier-shaft, but terminating in a round portion of equal diameter. I further provide the carrier-shaft  $h$  with notches  $l$  at such portions thereof and of such depths that the shaft is thereby admitted to the slots  $k$ , (but only when it is held in a certain fixed position,) which stop, in combination with the stop-piece now engaged in the cylinder, determines the relation of the take-up needles of the carrier to the receiving-sockets of the cylinder.

90 The upper boxes, that form the bearings of the carrier-shaft, are constructed each with a cap having one end hinged and the other end slotted. Through this slot passes the thumb-screw  $p'$ , which secures the cap to the lower half of the box. When it is required to retain the carrier in its bearings the thumb-screw is screwed down and its head crosses the slot, thus holding down the cap. When it is required to remove the carrier the thumb-screw is unscrewed until its head comes parallel with the slot, the caps are then thrown back, and the carrier may be lifted out. These caps may be provided with fly-springs, so that they will fly back themselves.

100 The cylinder B and carrier C are geared together by cog-wheels  $m n$ , which are prefera-

bly placed at both ends thereof in order to secure a steady motion, and the driving-power may be applied either to the cylinder or to the carrier.

5 The hopper D is constructed with a throat, D', or tubes which extend the entire length, or nearly so, of the cylinder and terminate adjacent to the periphery thereof—that is to say, the delivery end of the throat is next or adjacent to the periphery of the cylinder. In 10 the example shown the hopper D is supported by slides *g*, working transversely on the machine-frame, and it receives a reciprocating or shaking motion from an eccentric, *q'*, fixed to a shaft, *q''*, which is geared to the cylinder-shaft by bevel-wheels *q'''*; but, if desired, the 15 hopper may be left stationary.

The cylinder-stop E consists of a bolt which extends through one of the standards composing the machine-frame and engages a 20 socket, *r*, formed in one end of the cylinder or in one of its cog-wheels, the bolt being subjected to the action of a spring, *i*, having a tendency to force it into the socket, and being provided with a thumb-button at its outer 25 end for withdrawing from the socket against the action of the spring. The cylinder-stop can also, however, be formed in various other ways, which will readily suggest themselves to 30 a skilled mechanic.

In applying the apparatus to use the pills are placed in the hopper D, and the stop being withdrawn, a revolving motion is imparted to the cylinder B, by means of a crank or other 35 mechanism, and the carrier in the proper direction, so that when the sockets of the cylinder come under or opposite the throat or tubes of the hopper the pills fill such sockets, while when the sockets thus filled are brought into registration with the needles of the carrier C the 40 needles pierce the pills, and thus take up or remove the same from the sockets, leaving the latter ready for fresh supply. When the cylinder B has made one complete revolution it is arrested by the stop E, and all the needles of the carrier C having now been supplied— 45 namely, each with a single pill—the carrier is removed for immersing the pills in the desired coating solution. When this has been accomplished and the pills have become dry 50 they are removed from the needles, and the carrier is ready for a renewed operation.

When it is required to use only one machine for various size pills the cylinder may be made 55 in sections, each containing a series of sockets, the sections being dovetailed into or otherwise secured to the cylinder. These sections can thus be readily removed and other sections for a different size pill be put in.

60 A suitable tray, O, may be placed underneath the cylinder, for the convenience of the

operator to catch, any pills that may inadvertently be spilled.

I claim—

1. The combination, substantially as here- 65 inbefore set forth, of the revolving cylinder having its periphery provided with pill-receiving sockets, the revolving carrier arranged removably above the cylinder and provided with take-up needles, which are adapted to 70 register with the sockets of the cylinder, and the hopper having its throat arranged to extend approximately the entire length of the cylinder adjacent to its periphery.

2. The combination, substantially as here- 75 inbefore set forth, of the revolving cylinder having its periphery provided with pill-receiving sockets, the stop adapted to arrest the cylinder automatically at each complete revolution thereof, and the revolving carrier ar- 80 ranged removably above the cylinder and provided with take-up needles, which are adapted to register with the sockets of the cylinder.

3. The combination, substantially as here- 85 inbefore set forth, of the revolving cylinder having its periphery provided with pill-receiving sockets, the revolving carrier arranged removably above the cylinder and provided with take-up needles, which are adapted to reg- 90 ister with the sockets of the cylinder, the hopper having its throat arranged to extend approximately the entire length of the cylinder adjacent to its periphery, and the stop adapted to arrest the cylinder automatically at each complete revolution thereof. 95

4. The combination, with the cylinder having pill-receiving sockets, and the carrier having take-up needles, of the notched carrier-shaft, and the slotted guide-piece for such shaft, determining the position of the carrier 100 relatively to the cylinder, as described.

5. The combination of the cylinder and carrier, geared together, the notched carrier-shaft, the slotted guide-piece for such shaft, and the stop to the cylinder, securing proper relative 105 position of the carrier and cylinder, as shown and described.

6. The combination, with the feed-hopper, of the bevel-gear, the counter-shaft *q'*, eccentric, and connecting-rod arranged for agitat- 110 ing the hopper, substantially as described.

7. The combination of the needle-bars having needles arranged in them, and the collars and intermediate wheels, to form a carrier, as 115 described.

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

GEORGE F. CHAPPELL.

Witnesses:

FRANCIS CLARE BOWEN,  
EDGAR GARRETSON.