

H. C. NEER.
PILL COATING MACHINE.

No. 178,183.

Patented May 30, 1876.

Fig: 1.

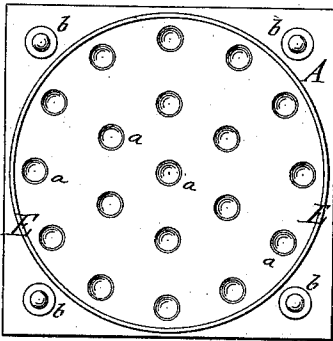


Fig: 2.

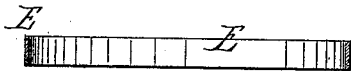


Fig: 6.

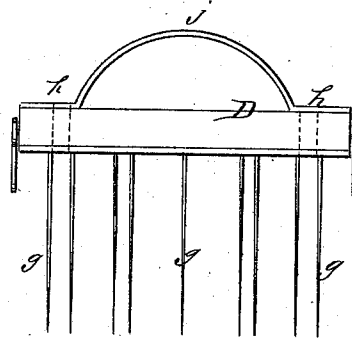


Fig: 5.

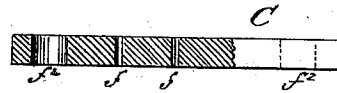


Fig: 4.

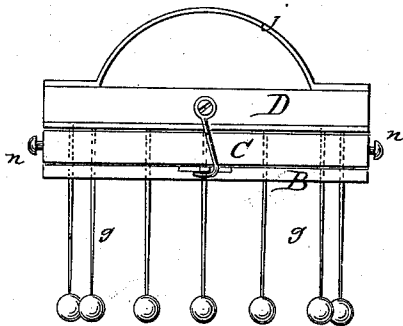
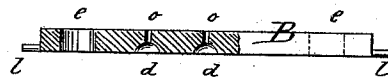
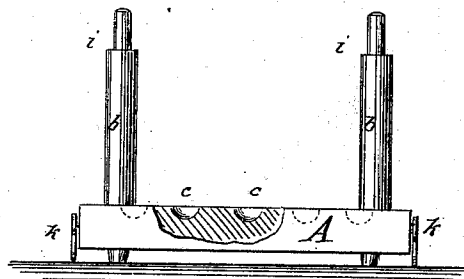


Fig: 7.

Fig: 3.



Witnesses:
M. Lovell
A. L. Mattenborg

Inventor:
Henry C. Neer
per *J. W. M. Smith*
Atty.

UNITED STATES PATENT OFFICE.

HENRY C. NEER, OF PARK RIDGE, NEW JERSEY.

IMPROVEMENT IN PILL-COATING MACHINES.

Specification forming part of Letters Patent No. 178,183, dated May 30, 1876; application filed April 25, 1876.

To all whom it may concern:

Be it known that I, HENRY C. NEER, of Park Ridge, in the county of Bergen and State of New Jersey, have invented a new and useful Improvement in Pill-Coating machines; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making part of this specification.

This invention is in the nature of an improvement in apparatus for coating pills with gelatine and other protecting substances; and the invention consists in a machine for coating pills constructed with a bed-plate containing receptacles for pills, a confining-ring to facilitate placing the pills in the receptacles, a covering-plate with pill cells, a guide-plate with guiding-apertures, and a needle-plate provided with needles, all constructed and arranged substantially as hereinafter described.

In the accompanying sheet of drawings, Figure 1 is a plan or top view of the bed-plate of my machine with confining-ring and pillars; Fig. 2, a cross-section of confining-ring; Fig. 3, a side view of bed-plate and pillars, partly in section; Fig. 4, a side view of covering-plate partly in section; Fig. 5, a side view of guide-plate, partly in section; Fig. 6, a side view of needle-plate, with needles; and Fig. 7, side view of needle, guide, and covering plates, showing pills adhering to needles.

Similar letters of reference indicate like parts in the several figures.

As is well known, it is expedient to cover the surface of pills with some protecting film, such as gelatine, which preserves the pill in a state of freshness, renders them tasteless in the mouth, but at the same time is soluble in the stomach. To that end I construct a machine which will enable the pills to be speedily coated without the necessity of handling them, as will be seen from the following description:

A represents the bed-plate of my machine, which may be made of any suitable material, preferably metal. The upper surface of this bed-plate has formed in it a series of cells, *a*. These cells are of a depth sufficient to receive one-half of the pills when they are placed in them. To the bed-plate A are secured pillars

b. These pillars are at right angles to the bed-plate, and extend upward. B is a covering-plate, with cells *d* in its under surface corresponding in size and depth to the cells *a* in the bed-plate A. In the covering-plate B are holes *e*, through which protrude the pillars *b* when the plate B is in place. C is a guide-plate, having formed in it a series of perforations, *f*. D is a needle-plate, affixed to the under side of which are needles *g*. This needle-plate has formed in it perforations *h*, through which pass the upper ends of the pillars *b*, permitting it to rest on the shoulders *i* thereof when it is in place. The upper surface of the needle-plate D is provided with a handle, *j*. E is a confining-ring, which, when used, is placed upon the bed-plate A surrounding the cells *a* therein. The bed-plate A has fixed to two of its sides hooks *k k*, the covering-plate lugs *l l*, and the guide-plate lugs *n n*.

My pill-coating machine being constructed substantially as above described, it is operated by placing the ring E on the bed-plate, between the pillars *b*, taking the pills previously formed, placing them on the bed-plate, and within the ring E, when, by giving the bed-plate a slight irregular motion with the hand, the pills will roll into the cells *a*, one pill in each cell, which will receive the pills, so that one-half of the bulk of each pill will project above the cells. The ring E is then removed, the covering-plate B is placed so that the pillars *b* pass through the holes *e* formed in the plate, and allowed to descend to the bed-plate A, in which position the portions of the pills that project above the bed-plate A are received into and covered by the cells *d* of the plate B, so that the entire surface of the pills are inclosed in the cells of the bed-plate and the covering-plate. The guide-plate C is next placed upon the top of the covering-plate B, the pillars *b* passing through the holes *f* in said guide-plate, and holding it in position. The needle-plate D is then placed so that the needles *g* therein will enter into and through the guide holes or perforations *f* in the guide-plate C, and through perforations *o* in the upper surface of the covering-plate B, and thence into the pills that are placed in the cells *a* of the bed-plate A, the upper ends of the pillars *b* entering into the holes *h* in the needle-plate

D, permitting it to descend to the shoulders *i* of the pillars *b*, the pillars acting as guides to the needle-plate, and the shoulders as stops to limit the descent of the needles and perforation of the pills. The pills being now punctured by the needles *g*, the covering-plate B and the guide-plate C are raised upward, sliding on the pillars *b* and the needles *g* until brought closely in contact with the under surface of the needle-plate D, in which position they are held by hooks *r* passing around the lugs *ll* of the covering-plate B. Then, by means of the handle *j* on top of the needle-plate D, the needle-plate is withdrawn from the pillars, and the pills will be removed from the cells *a* of the bed-plate, being transfixed on the ends of the needles, in which position they are inserted in a vessel containing gelatine or other suitable preparation with which it is designed to cover the pills. The gelatine being allowed to dry on the pills, the needle-plate is again placed on the pillars *b*, so that the pills are again received into the cells *a* of the bed-plate, the covering-plate B and guide-plate E being placed over them, and holding them in position. The needles *g* are then withdrawn, and the guide-plate C (having been previously warmed) is placed in its former position on top of the covering-plate, and the perforations left in each pill by the withdrawal of the needles are closed by the contraction of the pill caused by the heat of the guide-plate C, leaving the surface of the pill smooth, uniform, and dry. The guide and covering plates being then removed the pills are taken from the bed-plate and boxed for use.

It is obvious that the bed-plate A may be

provided with supplemental plates, with cells of different diameters to hold pills of different sizes.

Instead of closing the punctures of the pills by the heated guide-plate a brush may be used to supply enough gelatine through the perforations in the guide-plate for that purpose.

Having now described the construction and operation of my machine for coating-pills, what I claim as new, and desire to secure by Letters Patent, is—

1. A machine for coating - pills, constructed with a bed-plate provided with semi-spherical cells, a covering-plate with corresponding cells, a guide-plate with perforations, and a needle-plate with a series of needles affixed thereto, substantially in the manner and for the purpose described.

2. In a machine for coating pills, a confining ring or band, for the purpose described.

3. In a machine for coating-pills, a base-plate with pillars, whereon is fitted and held in position a plate provided with hemispherical indentations, substantially in the manner and for the purpose described.

4. In a machine for coating pills, a heated plate, whereby the punctures in the pills are closed, substantially as described.

5. In a machine for coating pills, fastening devices secured to the needle-plate, whereby the covering and guiding plates are secured, substantially as described.

H. C. NEER.

Witnesses:

H. L. WATTENBERG,
G. M. PLYMPTON.