W. R. WARNER.

Machine for Printing Pills.

No. 200,589. Patented Feb. 19, 1878.

Fig. 1.

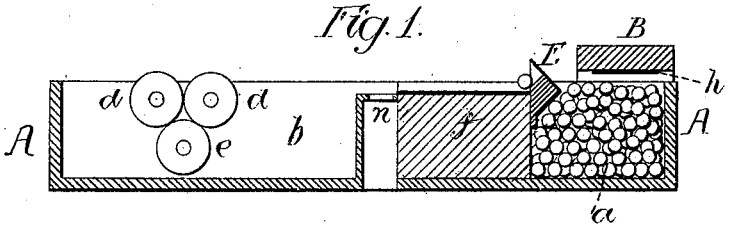
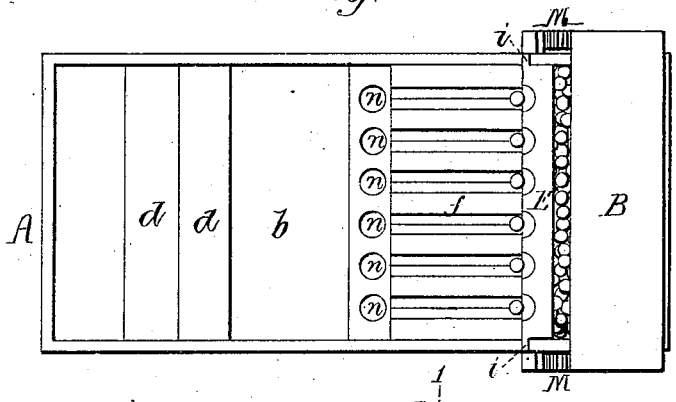


Fig. 3.



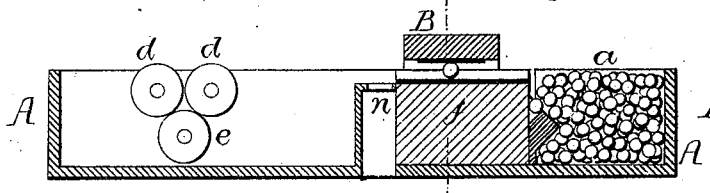
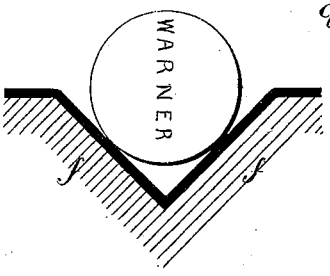


Fig. 2.

Fig 6



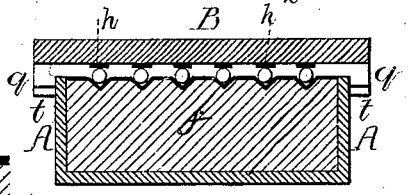


Fig. 4.

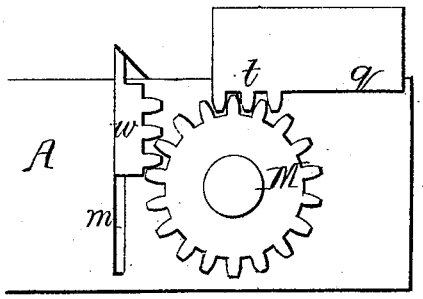


Fig. 5.

Witnesses,

John M. Hemer.

Harry Smith

Inventor

William R Warner

by his Attorneys

Howson & Son

UNITED STATES PATENT OFFICE.

WILLIAM R. WARNER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR PRINTING PILLS.

Specification forming part of Letters Patent No. **200,589**, dated February 19, 1878; application filed November 26, 1877.

To all whom it may concern:

Be it known that I, WILLIAM R. WARNER, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Machines for Printing Pills, of which the following is a specification:

The object of my invention is to print or indent on pills the name of the manufacturer, or such other name or design as the character of the pill may suggest; and this object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical section of my pill-printing machine; Fig. 2, the same, showing the slide in a different position; Fig. 3, a plan view; Fig. 4, a transverse vertical section on the line 1 2, Fig. 2; Fig. 5, an exterior side view, drawn to an enlarged scale, of one end of the machine; and Fig. 6, an enlarged view, showing one of the grooves in which the pill is rolled during the operation of printing.

The box-like base A of the machine has at one end a compartment, *a*, for containing a supply of pills; at the other end a compartment, *b*, containing inking-rollers *d d* and *e;* and between these compartments is the bed *f*, in the upper surface of which are a series of longitudinal V-shaped grooves—six, in the present instance—the sides of these grooves being preferably clothed with rubber. B is a slide, which can be moved to and fro on the base, being guided thereon by side strips; and on the under side of this slide are as many printing-plates, *h*, as there are grooves in the bed *f*, the said plates, which, by preference, are made of rubber, being situated one directly above each groove in the bed, and so far above the latter that pills contained in the grooves will be subjected to a slight pressure when the printing-plates are in contact with them. At the rear of the bed is a triangular bar, E, projections *i* on the opposite ends of which pass through and are guided by vertical slots *m* in the opposite sides of the box, the slots being too narrow to permit the pills to pass through them. One face of the triangular bar is in contact with the rear of the bed *f*, and in the upper edge of the bar are cut as many inclined and concave notches as there are grooves in the bed, one notch coinciding with each groove.

A vertical reciprocating motion is imparted to the bar E, either by hand or from the slide, through the medium of the devices described hereinafter, or other suitable mechanism. When the bar is depressed its inclined lower edge will displace the pills in the reservoir *a* until it reaches the position shown in Fig. 2, when the notches will form a series of pockets, each containing a pill, which is retained in place by the rear of the bed. When the bar is elevated it will carry up with it as many pills as there are pockets, each pocket being just large enough to receive one pill, and when the bar has reached the elevated position shown in Fig. 1 the pills will roll from the pockets into the V-shaped grooves of the bed, one pill in each groove, after which the bar may be again depressed, so as to be out of the way of the slide, the printing-plates of which have been previously inked, and which may now be moved forward, so that each inked plate will act on one of the pills, and, while it rolls the latter along the grooves, will impart the desired impression to the same, the printed pill finally dropping through a hole, *n*.

I prefer to have as many holes *n* as there are grooves in the bed, and to place below each hole a small glass bottle for receiving the pills, which I prefer to put up in the bottles, ready for sale to the druggists, in preference to depositing them in a box.

In moving the slide forward it is pushed so far that its printing-plates will come in contact with the inking-rollers, and thus receive sufficient ink for printing the surfaces of another batch of pills.

It is important that the grooves should be V-shaped, so that in rolling the pills along them the printed matter shall not be smeared by contact with the bed.

In the present instance, the flanges *q q* of the slide, which overhang the base, are provided with teeth *t*, adapted to those of the wheels M, one of which is hung to a stationary pin on each side of the box, the teeth of the wheels gearing into those of racks *w*, one of which is secured to each end of the triangular bar E. When the slide has reached the limit of its rearward movement the gearing described will be in the position Fig. 5; but on moving the slide forward the triangular bar

will be at once depressed, and will not be elevated again until the slide again approaches the limit of its rearward movement.

This mode of printing is adapted to the hard surface of sugar-coated pills; but if letters or designs have to be indented on the surface of the pills, the latter should be sufficiently plastic to receive the impression.

I claim as my invention—

1. The mode herein described of printing or indenting the surface of pills—that is, by causing printing or indenting surfaces to roll the pills under pressure, in the manner set forth.

2. A pill-printing machine in which a bed with a series of V-shaped grooves is combined with a slide carrying the printing or indenting plates, substantially as set forth.

3. The combination of the bed and its series of V-shaped grooves with the pill-reservoir *a* and the notched bar E, to which a vertical reciprocating motion may be imparted, substantially as described.

4. The combination of the slide and its printing or indenting plates with the bed having V-shaped grooves, the sides of which are clothed with rubber or other equivalent yielding material, all substantially as specified.

5. The combination of the grooved bed, the slide, and the reciprocating transverse bar E with mechanism, substantially as described, through the medium of which the slide is caused to operate the bar, in the manner set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM R. WARNER.

Witnesses:

H. A. CRAWFORD,

HARRY SMITH.