3 Sheets—Sheet 1.

A. C. HOBBS.

Machine for Filling Cartridge-Shells with Varnish.

No. 211,157. Patented Jan. 7, 1879.

Fig. 1.

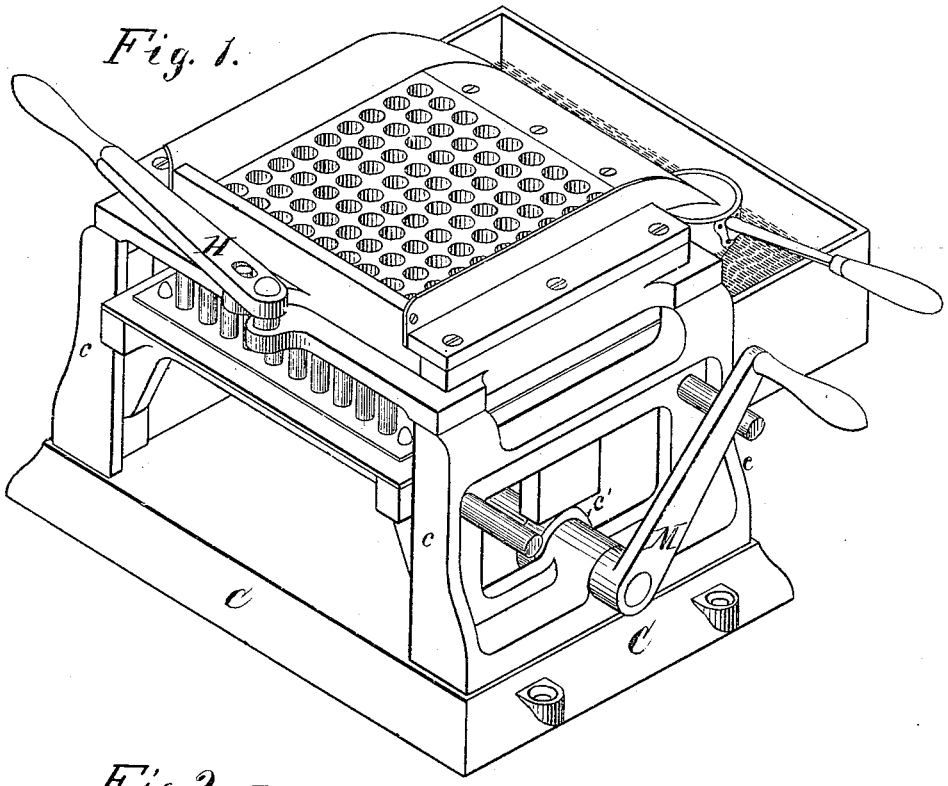
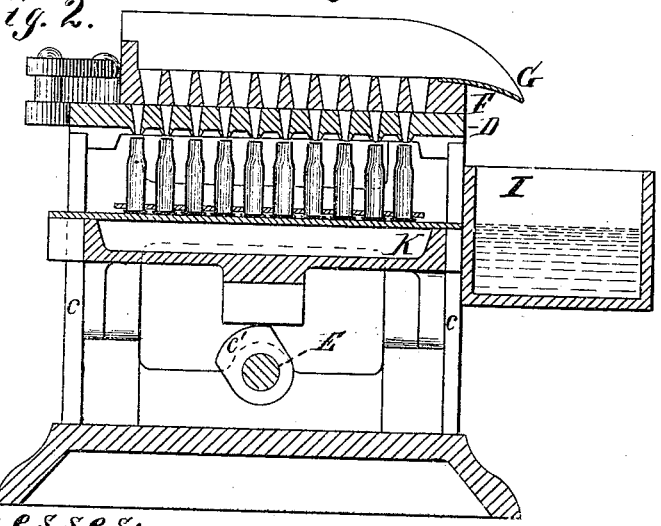


Fig. 2.



Witnesses;
Bern. J. Vetterlein
Phillips Abbott.

Inventor;
A. C. Hobbs by
Charles F. Blake his atty

3 Sheets—Sheet 2.

A. C. HOBBS.

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Fig. 3.

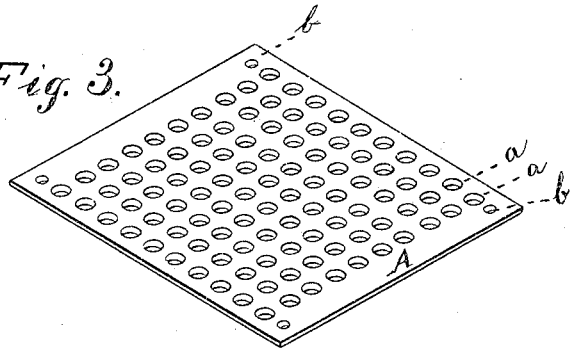


Fig. 4.

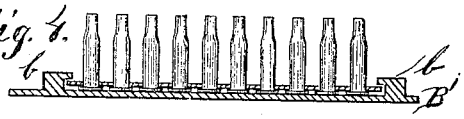


Fig. 5.

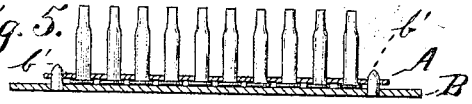


Fig. 6.

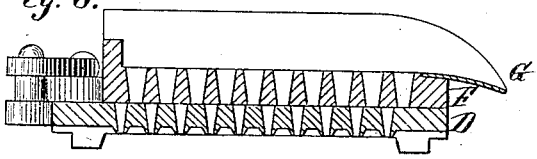
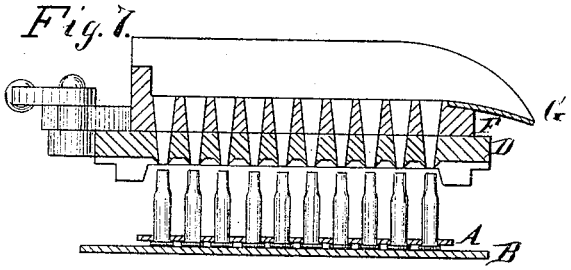


Fig. 7.



Witnesses;
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3 Sheets—Sheet 3.

A. C. HOBBS.

Machine for Filling Cartridge-Shells with Varnish.

No. 211,157. Patented Jan. 7, 1879.

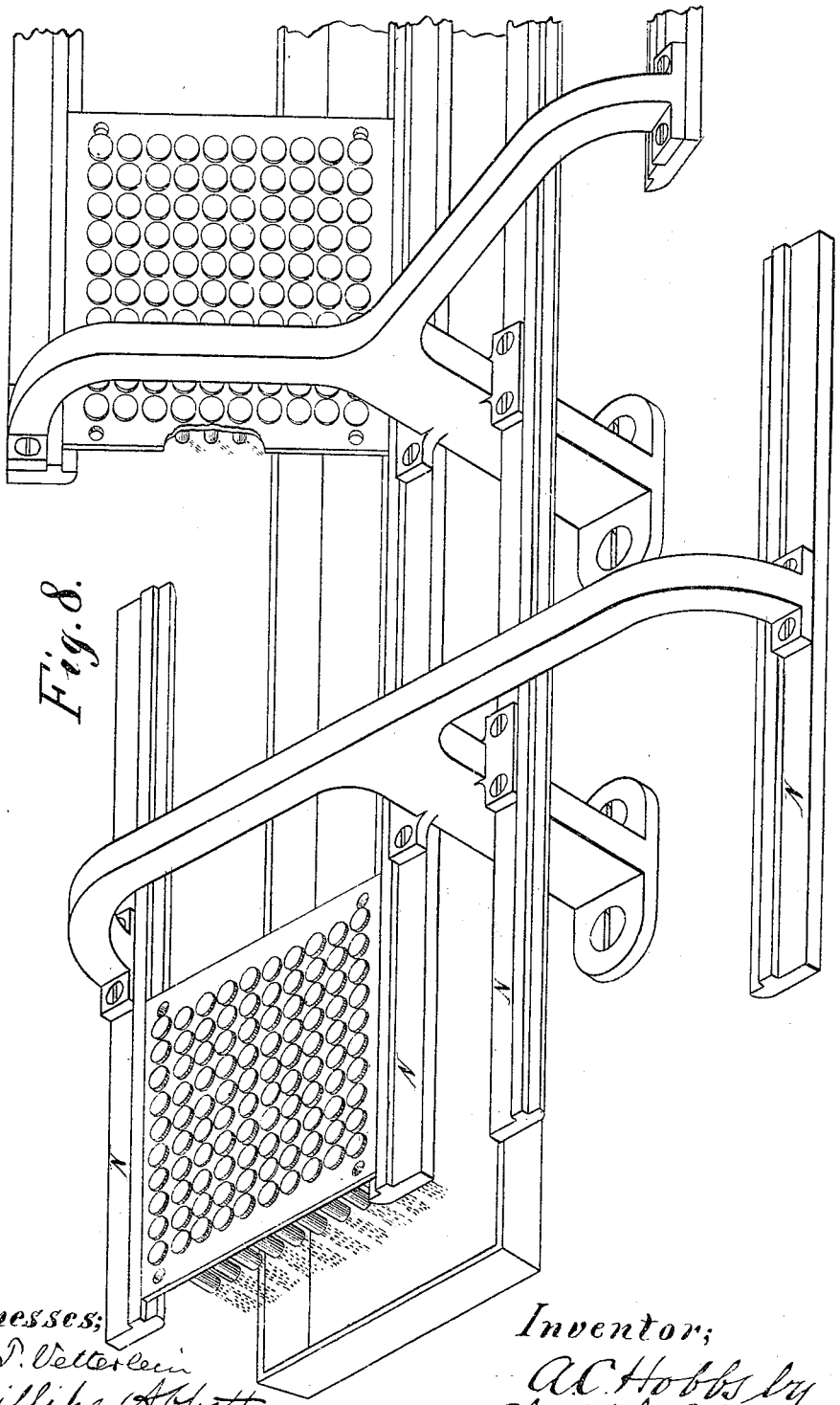

Fig. 8.

Witnesses;
Benn. T. Vetterlein
Phillips Abbott.

Inventor;
A. C. Hobbs by
Charles F. Blake Attorney

UNITED STATES PATENT OFFICE.

ALFRED C. HOBBS, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO UNION METALLIC CARTRIDGE COMPANY.

IMPROVEMENT IN MACHINES FOR FILLING CARTRIDGE-SHELLS WITH VARNISH.

Specification forming part of Letters Patent No. **211,157**, dated January 7, 1879; application filed December 1, 1877.

To all whom it may concern:

Be it known that I, ALFRED CHARLES HOBBS, of the city of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Machine for Varnishing the Interior of Cartridge-Shells, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it most nearly appertains to make and use the same, when taken in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of my machine. Fig. 2 is a sectional view. Fig. 3 is a perspective view of the holder-plate. Fig. 4 is a cross section of the holder-plate, with the shells and the keeper-plate used after the shells are filled in position. Fig. 5 is a section of the holder-plate, with the shells and the keeper-plate used prior to filling of the shells in position. Fig. 6 is a sectional view of the cup-plate and filling-plate in the position in which they are put when the cups are to be filled. Fig. 7 is a sectional view of the same parts in position to empty the contents of the cups in the shells below the filling-plate.

The charge of gunpowder in a metallic shell injures the shell by the chemical action between the shell and the charge. To avoid this injurious effect to the shell I find it advantageous to coat the interior surface of the shell with a varnish or other suitable substance.

When the coating is applied to the interior of a shell by a brush or any of the well-known means, it is difficult to make the coating complete. To avoid this difficulty it is best to fill the shell with varnish, and thus make the contact between it and the interior surface complete, when the superfluous varnish is emptied out, leaving a completely-covered interior surface.

My invention relates to a machine for coating the interior of cartridge-shells; and consists of three parts—the plates to hold the shells, the machine to fill them, and the rails upon which they are placed to drip.

The plates to hold the shells consist of the plate or metal sheet A, having holes *a a* through it at appropriate distances from one another, and of such a size that the body of the shell will, while the head of the shell will not, pass through. At or near the corners of the sheet are smaller holes *b b* to receive the lugs *b' b'* of the plate B, which is arranged to be placed on the sheet A after the sheet has been filled with the shells, so as to keep them from falling out when the plate is turned over.

The machine consists of a frame, C, having the uprights *c c c c*, on which is the filling-plate D, the cross-shaft E, and the bars for the table *k* to rest upon. The filling-plate D consists of a plate having holes bored through it at distances from one another corresponding with the distances between the holes in the shell-holder. On the lower side of this plate, about each hole, is a projection to enter the shell, so that a close connection between the shell and the plate may be formed. Above the filling-plate is another plate, F. This measure or cup-plate, which slides in grooves, bears upon the filling-plate D, and makes a water-tight joint with it. This plate has holes bored through it the same distance from one another as the holes in the filling-plate.

On three sides of the cup-plate are cleats or sides, and on the fourth side a spout, G, which projects over the trough.

The cup-plate is arranged to slide in grooves, and is operated by the lever H, attached to it and to the frame of the machine.

When the lever, and consequently the cup-plate, is in one position, the holes in the cup-plate are closed by the filling-plate. When the lever is moved, and consequently the cup-plate, the cups or perforations in the cup-plate are brought over the perforations in the filling-plate.

On one side of the frame is attached the trough I, in which the varnish is placed, and from which it is dipped upon the cup-plate and into the cups.

A table, *k*, adjustable perpendicularly by means of the cams *c' c'* on the shaft E, is arranged below the filling-plate. It rests upon the cross-bars or cleats on the uprights *c* of the frame when the shaft is turned so as to take the cams out of contact with the table.

The crank M is attached to the shaft E, which is turned by the crank to raise and lower the table K.

The rails N N are placed at a distance from

one another about equal to the width of the shell-holder plate, so that they may receive the plate. When removed from the varnishing-machine the rails are arranged to keep the plate horizontal part of the time, and then turn at an angle, by making one rail higher than the other, so that the varnish which adheres to the shells may be collected in a drop on one side of the shell and fall off from it.

The keeper-plate B, having the lugs *b' b'* at its corners, is taken from the holder-plate and the plate B' substituted for it, when the holder and shells are taken from the rails and passed into the furnace to dry.

The mode of operation is as follows: In each hole of the holder-plate a shell is placed, when the keeper-plate B is put on it and the shells, to keep them from falling out when the holder-plate is turned over. The plates with the shells are then slid on the table of the machine. The shaft E is turned, which brings the mouths of the shells in contact with the lower side of the filling-plate D. The plate F being in the position shown in Fig. 6, the holes of the plate being closed by the filling-plate D, varnish is poured over the cup-plate and the cups filled, the superfluous varnish returning to the trough I by the spout G. The cup-plate is now moved by the lever H until the holes in it are directly over the holes in the filling-plate, when the varnish in the cups passes through the holes in the filling-plate into the shells below. The holder and shells are now removed from the machine by turning the shaft E, and the cams *c' c'* lowering the table and sliding the plate out. The holder-plate is now placed on the rails N N so that the mouths of the shells will be down. The keeper-plate B is removed when the holder-plate is placed on the rails. The varnish in the shells runs out and is collected in pans below. The rails are made one higher than the other part of the distance, so that the shells will be tipped, and the varnish which adheres to the shells is made to fall from them into pans placed below. The keeper-plate B' is put on the holder-plate to keep the shells from falling from their position in the holes of the holder-plate when it is being removed from the rails and put in the furnace to dry.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a cartridge-filling machine, of the fixed perforated feed-plate, reciprocating cup-plate, and table, adjustable by the eccentrics, as specified and set forth.

2. The combination of a fixed filling-plate and shell-holder and table, adjustable by the shaft and eccentrics, as specified and set forth.

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Witnesses:

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CHAS. W. HAWLEY.