

(No Model.)

2 Sheets—Sheet 1.

W. HILL.

CARTRIDGE LOADING MACHINE.

No. 332,904.

Patented Dec. 22, 1885.

FIG. 1.

FIG. 2.

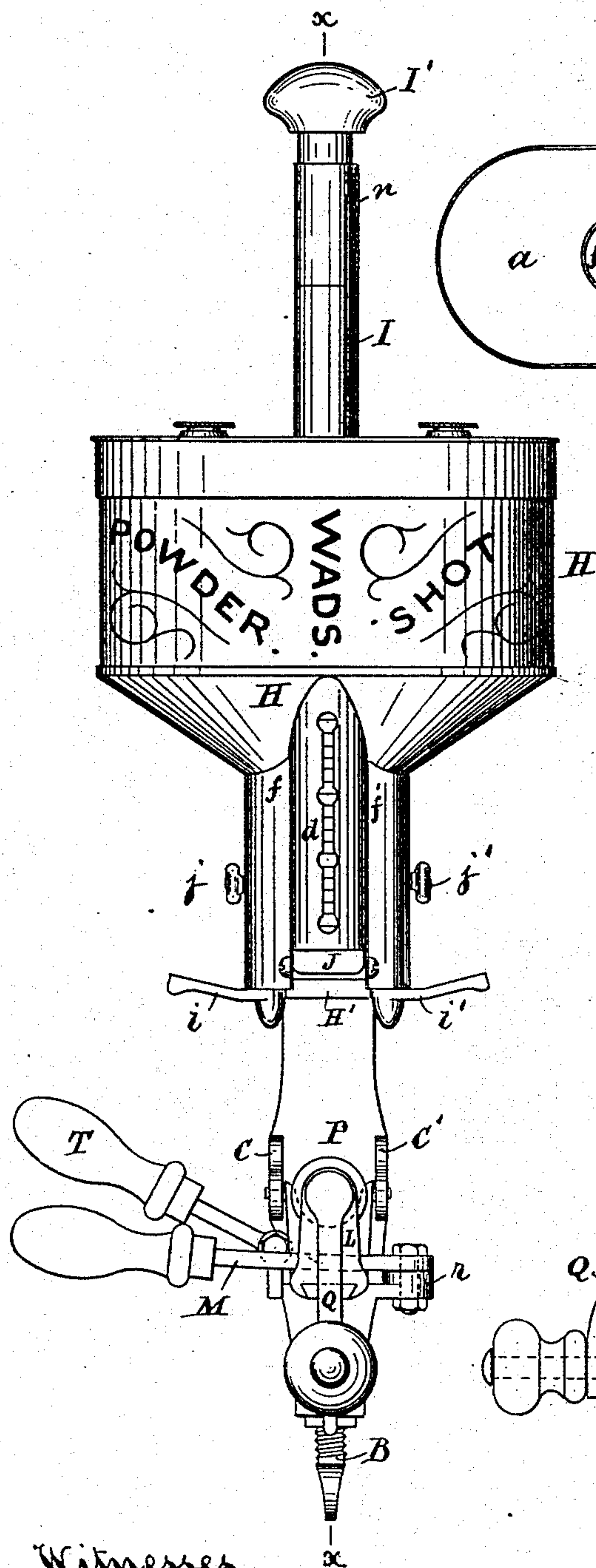
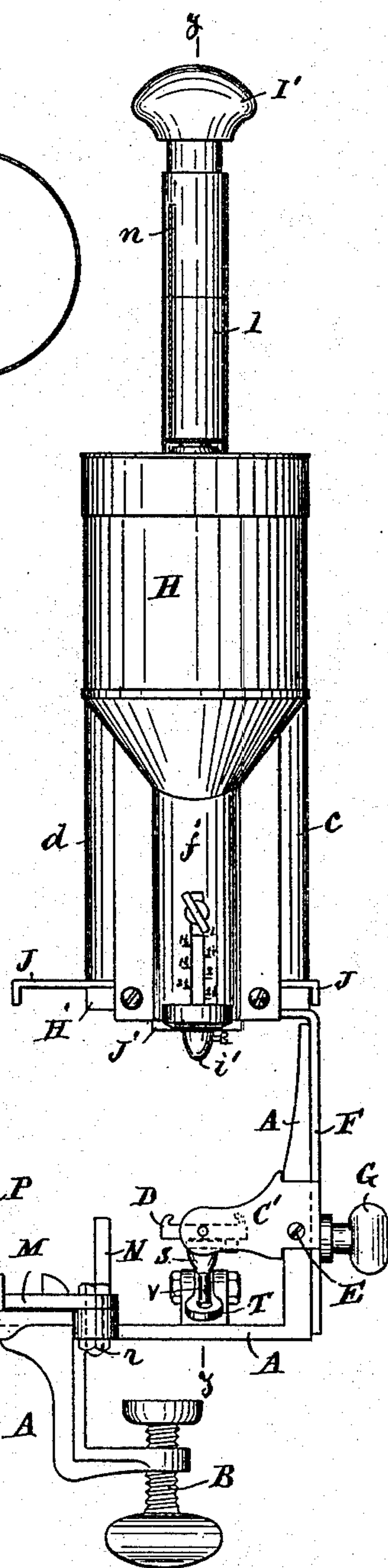
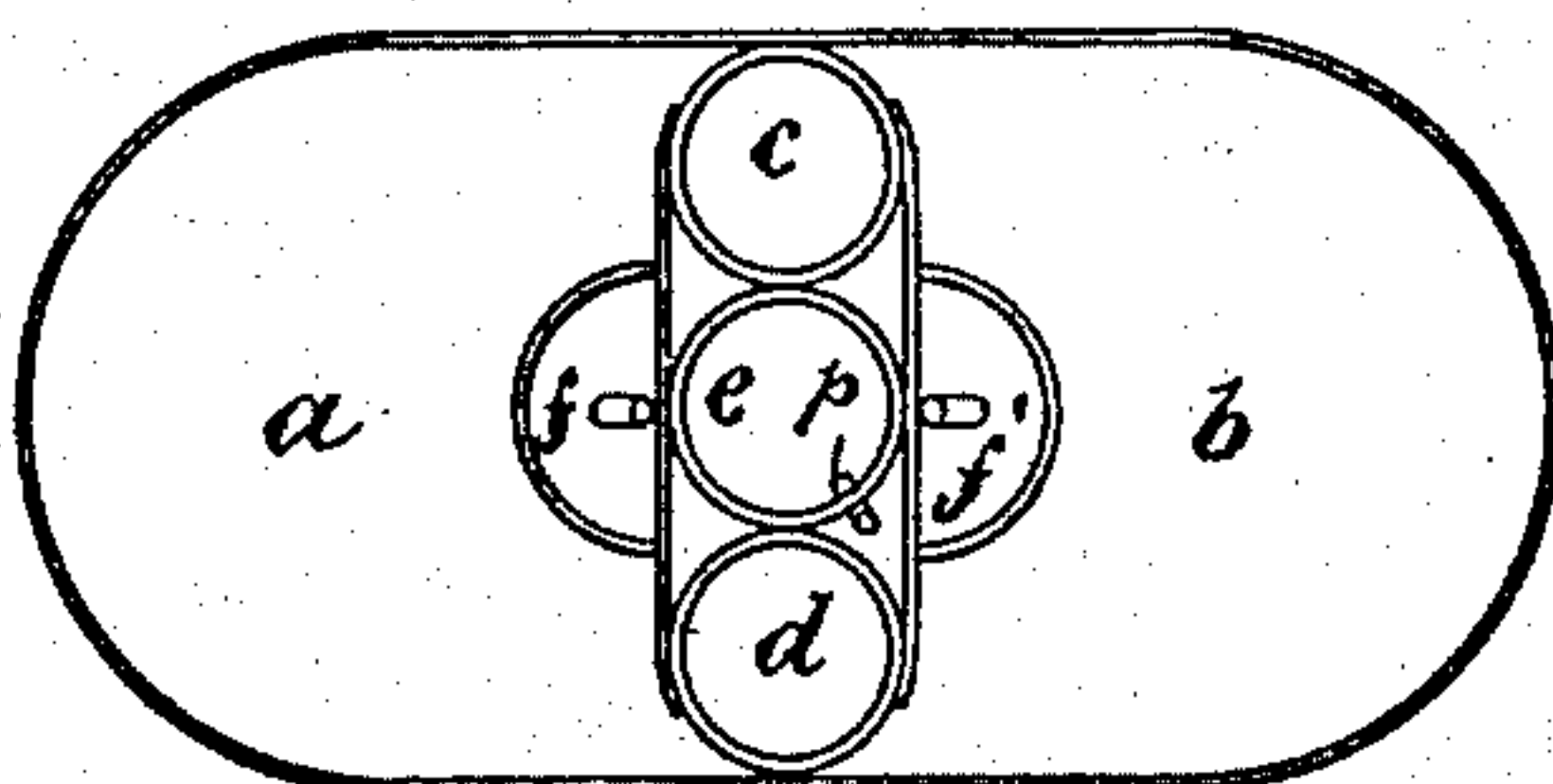


FIG. 3.



Witnesses.

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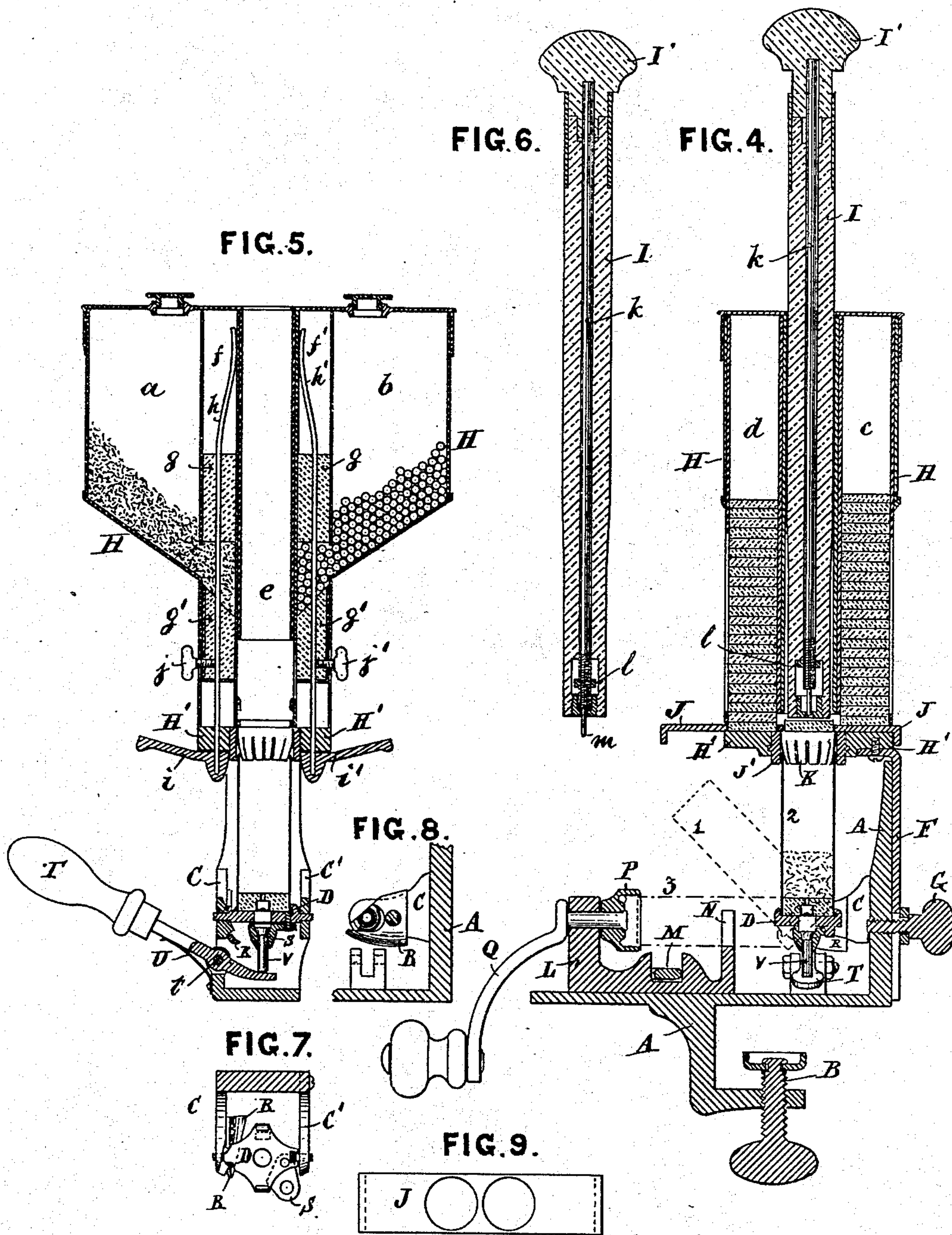
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UNITED STATES PATENT OFFICE.

WALTER HILL, OF SOUTH EASTON, MASSACHUSETTS.

CARTRIDGE-LOADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 332,904, dated December 22, 1885.

Application filed April 4, 1885. Serial No. 161,176. (No model.)

To all whom it may concern:

Be it known that I, WALTER HILL, a citizen of the United States, residing at South Easton, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Cartridge-Loaders, of which the following is a specification.

The object of my invention is to produce a simple, compact, and portable machine for loading, capping, and decapping and crimping cartridges all in one continuous operation.

The invention comprises a holder or receptacle for containing powder, shot, and wads in separate compartments, so arranged and connected that the powder and wad or wads and the shot and wad or wads are fed successively to the cartridges, as desired, and without changing the position of the cartridge or of either receptacle during the operation.

Means are provided for accurately measuring charges of any required size as they are fed to the cartridge-shell. A device is also provided for feeding one or more wads successively to the cartridge-shell without interfering with any of the other operations.

The invention further comprises a peculiar means for forcing the wad or wads into the cartridge-shells, and also for decapping the shells, and also a peculiar device for recapping cartridge-shells preparatory to reloading the same. A clutch or holder for holding the cartridge-shell while being loaded, decapped, capped, and crimped is also employed, and also a device for crimping the cartridge without removing it from the clutch.

Referring to the accompanying drawings, Figure 1 represents a front view of a cartridge-loading machine constructed according to my invention. Fig. 2 is a side view of the same. Fig. 3 is a plan view of the top with the cover removed. Fig. 4 is a transverse vertical section taken on line *x x* of Fig. 1. Fig. 5 is a longitudinal vertical section taken on line *y y* of Fig. 2, with plunger removed. Fig. 6 is a vertical section of the plunger. Figs. 7 to 9 are detail views hereinafter more fully described.

A is a base piece or frame of the machine, to be secured to a bench or table by means of a clamp-screw, B.

D is a cartridge-shell holder consisting of a

flat piece of metal perforated at its center, and having ears or turned-over edges at the front and rear for retaining the rim of the cartridge-shell. The shell-holder is pivoted to two arms or brackets, C C', attached to the upright portion of the frame or base-piece A A, so that it can be turned forward to receive a cartridge-shell. The arm C' is secured to the frame A by means of a screw, E, so that it can readily be removed when a different-sized cartridge-holder is required.

F is a spring clamped to the back of the frame A by means of a thumb-screw, G, and to the upper portion of the spring F is secured the box or receptacle H. The spring F is made adjustable vertically on the frame A, so that the distance between the holder D and the bottom of the box H can be regulated according to the size of the cartridge-shell being loaded. The box or receptacle H is divided into five separate compartments, *a b c d e*, the compartment *a* for holding powder, *b* for shot, *c d* for wads, and the central compartment, *e*, for a plunger, I. The bottom of the compartments *a b* are made sloping or funnel-shaped, for conducting the powder and shot to the bottom of the central opening, *e*, and the said compartments are each fitted with a valve-chamber, *f f'*, in which two valves, *g g'*, attached to rods *h h'*, are free to slide, the lower ends of the rods passing out through the bottom of the valve-chambers and secured to arms *i i'* by set-screws or other convenient means. The upper ends of the rods *h h'* are bent, as shown, so as to press against the sides of the valve-chamber, and thus act as springs for preventing the valves from falling by their own weight. The upper valves, *g*, are permanently attached to the rods *h h'*, and the lower valves, *g'*, are adjustable on the said rods and held in position by means of thumb-screws *j j'*. The space between the valves *g g'* can thus be adjusted to hold any required charge of powder and shot, a graduated scale marked on each side of the box indicating the quantity that will be held between the valves *g g'*, so that should a larger charge be required then the valve *g'* is lowered to the required mark indicated on the scale, and if a smaller charge is required the valve *g'* is raised to the required mark on the scale. The space between the two valves *g g'*

are thus adjusted to contain the desired charge. Suitable openings are made in the partitions dividing the valve-chambers from the chambers *a b*, and similar openings are made between the valve-chambers and the central opening, *e*, for allowing the charge to enter between the valves, and when said valves are drawn down the charge escapes into the central opening, *e*.

10 J is a slide having two openings. (See Fig. 9.) This slide passes under the compartments *c d*, containing the wads, and also under the central opening, *e*, so that when one of the openings is under the compartment *d* the other
15 opening will be under the central opening, *e*, and the lower wad in the compartment *d* will fall into the opening under that compartment, and when the slide is pushed back will carry the wad under the central opening, *e*, ready to
20 be forced into the cartridge shell. The other opening in the slide will then be under the compartment *c*, ready to receive a wad from that compartment, which in turn will be drawn under the central opening, *e*, as the slide is
25 again drawn forward, and so on, a wad being carried under the central opening every time the slide is pushed back or drawn forward.

The plate *H'*, forming the base of the box or receptacle *H*, is formed in the center with
30 a circular aperture, into which is fitted a ring, *J'*, either by means of a screw or pins formed on the ring *J'* and fitting into a groove cut into the inner surface of the aperture of the plate *H'*. Inside the ring *J'* is secured another
35 ring, *K*, of thin metal slit up, as shown in Figs. 4 and 5, and the lower ends are turned slightly in toward the center. By this arrangement the cartridge-shell when placed in position on the machine passes up a short distance
40 between the ring *J'* and ring *K*, so that when the wads are forced down into the cartridge-shell they will be properly guided, and will not strike upon the upper edge of the cartridge-shell. The rings *J'* and *K* are made
45 removable, so that rings of different sizes may be inserted according to the size of cartridge-shell being filled.

The plunger *I* is made hollow, and has a rod, *k*, passing through it, the upper end of which
50 is secured to the knob *I'*, and at the lower is a screw upon which is placed a nut, *l*, which prevents the rod from being drawn out beyond a certain distance, and the extreme end of the rod is provided with a needle or punch, *m*,
55 which is caused to project beyond the end of the plunger, when required to decap the cartridge-shells, by turning the handle *I'*, the lower end of which is formed with a tongue, while the upper end of the plunger is formed
60 with a groove, into which the tongue fits, so that when the handle is turned to cause the tongue to fit into the groove the punch *m* will project, but when the handle is drawn up and turned at right angles the tongue will rest up
65 on the top of the plunger and prevent the punch from projecting below the bottom, in which position it is employed for forcing the

wads into the cartridge-shell. In the side of the plunger *I* is cut a long narrow groove, *n*, into which fits a pin, *p*, (shown in Fig. 3,) on
70 the end of a spring. The said spring and pin hold the plunger up and prevent it from falling by its own weight.

L is a sliding frame held onto the frame *A* by means of a dovetailed groove on the under
75 side of frame *L*, and fitting over the sides of the base-plate, that has its edges in that part formed to correspond. The frame *L* is moved backward and forward by means of the hand-lever *M*, fulcrumed to the frame *A* at *r*, and
80 is provided at its forward end with a rest, *N*, and at its rear end with a crimper, *P*, that can be rotated by the hand-lever *Q*.

The cartridge-shell is kept from rotating during the operation of crimping by means of
85 a spring, *R*, secured to the bracket *C*, pressing against the metal rim of the same and holding it stationary.

To the under side of the cartridge-shell holder *D* is pivoted a cap-holder, *S*, which is
90 free to be swung out, as shown in Fig. 7, so as to receive a new cap, after which it is pushed back, so as to bring the cap under the aperture in the center of the shell-holder *D*, as shown in Figs. 4 and 5.
95

T is a lever fulcrumed to the frame *A* at *t*, and kept in a raised position by means of a spring, *U*. The inner end of this lever passes under a small plunger, *V*, in the cap-carrier *S*,
100 so that by depressing the lever *T* the plunger *V* is raised and forces the cap on the carrier *S* into the cartridge-shell. This capping device is used for reloading the shells.

The operation is as follows: The machine is secured to a bench or table, and the sev-
105 eral parts being in the positions shown in the drawings, and the several compartments supplied with powder, shot, and wads, the shell-holder is turned to an angle of about forty-five degrees, when the shell can be in-
110 serted, as shown by dotted lines (marked 1) in Fig. 4. The shell is then pushed back, the box *H* being pressed back, so as to allow the upper edge of the shell to pass between the rings *J* and *K*. (See Fig. 4.) The shell is
115 then held in the position marked 2, and the thumb-piece drawn down, which supplies the proper amount of powder that falls into the shell. The thumb-piece *i* is then pushed up and the slide *J* moved back, which carries a
120 wad from compartment *d* to the bottom of compartment *e*. A blow is then struck on the knob *I'*, and the plunger forces the wad down. The plunger is then drawn up and the thumb-piece *i'* pulled down, which allows the re-
125 quired amount of shot to pass into the shell, when the thumb-piece *i'* is pushed up and the slide *J* drawn forward, carrying a wad from compartment *c* to the bottom of compartment *e*. The plunger *I* is then again forced down,
130 sending the wad onto the top of the shot. The shell, thus loaded, is then turned into the position shown by dotted lines marked 3, and the lever *M* pressed so as to bring the crimper *P*

into contact with the cartridge. By turning the handle Q the edge of the cartridge is turned inward and the latter is complete. The cartridge is then again turned to the position marked 1 in dotted line, when it can be withdrawn from the machine.

In reloading a shell, after it has been placed in position marked 2, the knob I' is turned so that the punch *m* will project, as shown in Fig. 6, and a blow being struck on the knob I' the spent cap is forced out. A new cap is then placed on the cap-carrier and put into position, and by applying pressure to the lever T the cap is forced into the shell, and the operation of loading is then continued as before described.

What I claim as my invention is—

1. A cartridge-loading machine consisting of a box or receptacle divided into several compartments, all connected with a central compartment in which is a plunger, two of said compartments being for powder and shot, respectively, and two for holding wads, placed one on each side of the central compartment, and provided with a perforated slide, which takes a wad alternately from each wad-compartment, the chambers for powder and shot being provided with valves to allow the powder and shot to pass into the central compartment, the said valves being so adjusted as to admit of a greater or less quantity of powder and shot to pass into the central compartment to be fed to the cartridge-shells, substantially as set forth.

2. The combination of the receptacles *a b*, holding, respectively, powder and shot, chambers *f f'*, arranged between the receptacles *a b* and the central delivery-tube, valves *g g* and *g' g'*, arranged one set above and one set below the delivery-passage leading from the powder-and-shot receptacles to the chambers *f f'* and attached to rods *h h'*, which are free to slide up and down, the lower ends of the rods *h h'* passing through the bottom of the chambers *f f'* and secured to arms *i i'*, by which the said rods are moved, the upper valves, *g g*, being permanently attached to the rods *h h'*, and the lower valves, *g' g'*, being adjustable on said rods, whereby the space between the two sets of valves can be adjusted to hold any required charge of powder or shot, all substantially as shown and described.

3. The cartridge-holder D, in combination with and pivoted to arms C C', secured to the upright portion of the frame A, the arm C' being attached to the frame by means of a screw, so that it can be readily removed for the accommodation of cartridge-shells of different sizes, as set forth.

4. The plate H', forming the base of the receptacle H, and provided with an opening at its center, in combination with the removable rings J' and K, the latter being secured within the ring J', and also slitted at its lower portion and bent slightly inward, as and for the purpose set forth.

5. The combination, with the base-plate A and the receptacle H, of the adjustable and adjusting spring F, secured to the base-plate by a screw, G, so that the receptacle H can be readily adjusted to cartridge-shells of different lengths, as set forth.

6. In combination with the shell-holder D, the spring R, secured to the arm C, and caused to press against the rim of the cartridge-shell base, so as to retain the shell in position and prevent it from turning during the operation of crimping, as set forth.

7. The frame L, made to slide upon the frame A, in combination with a crimper, P, journaled in the same and operated by a crank, Q, a hand-lever, M, fulcrumed in the frame A, by which the frame L is moved to and fro, and the rest N, as shown and described.

8. The cap-holder S, in combination with and pivoted to the under side of the cartridge-holder D, so as to enable it to swing and carry a cap to the center of the shell-holder, the lever T, fulcrumed to the frame A and held in an elevated position by means of a spring, U, the inner end of the lever T bearing upon the lower end of a plunger, V, moving in the carrier S, whereby upon depressing the lever T a cap is forced into the cartridge-shell, as described.

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

WALTER HILL.

Witnesses:

J. H. ADAMS,
E. PLANTA.