

C. H. WEBB.

Cartridge Loading Machines.

No. 152,263.

Patented June 23, 1874.

Fig. 4

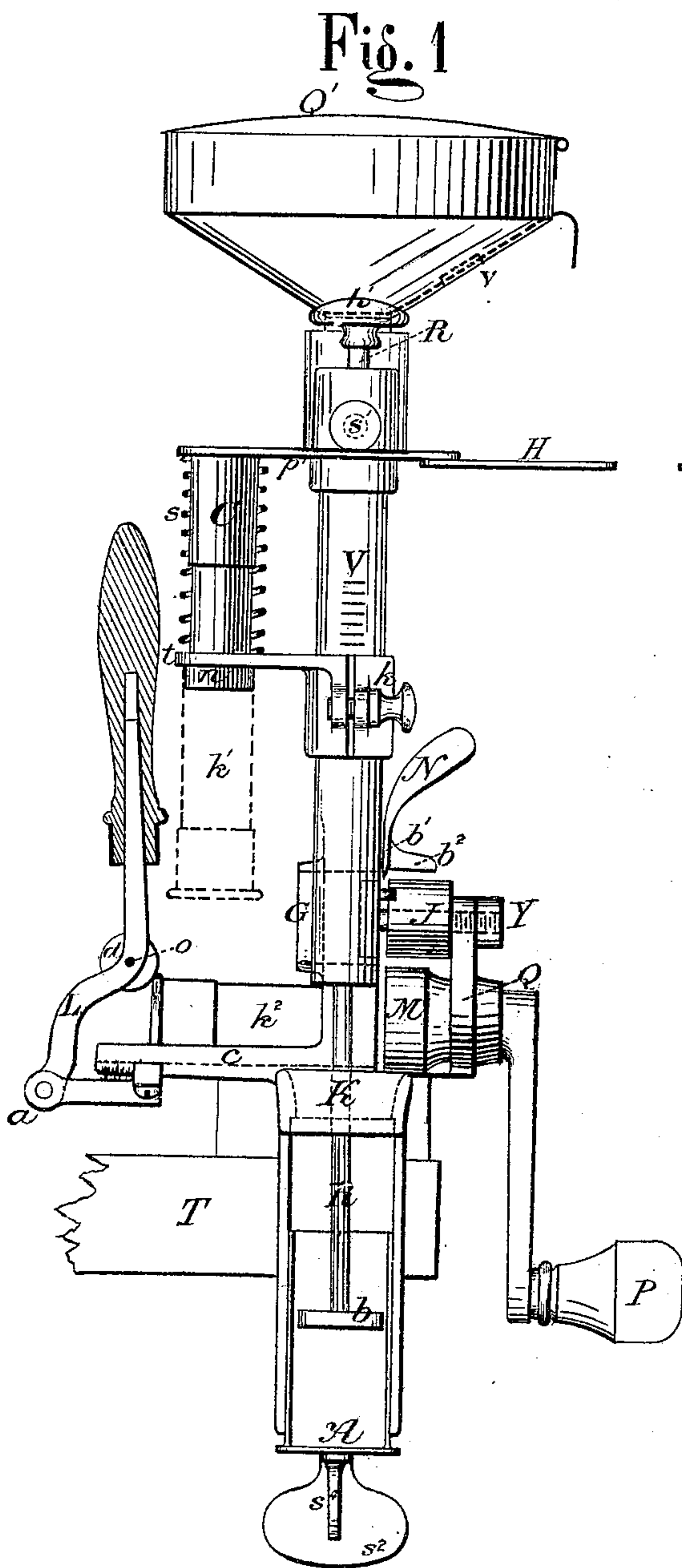
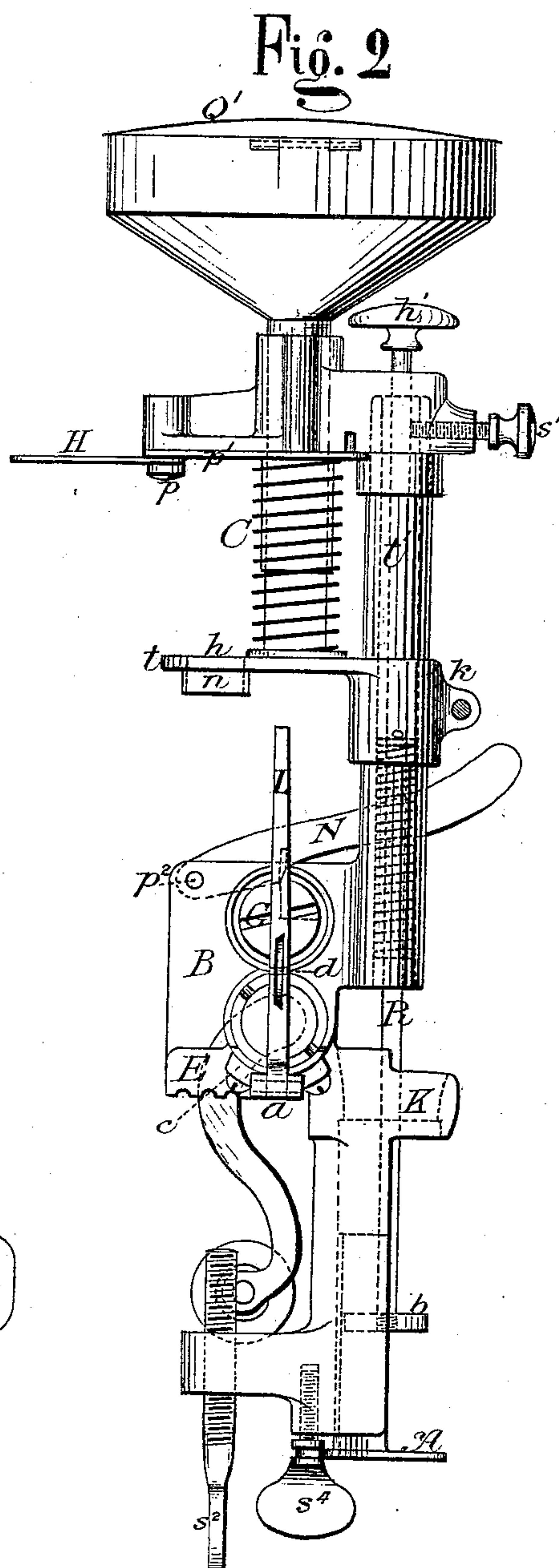


Fig. 2



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Fig. 3

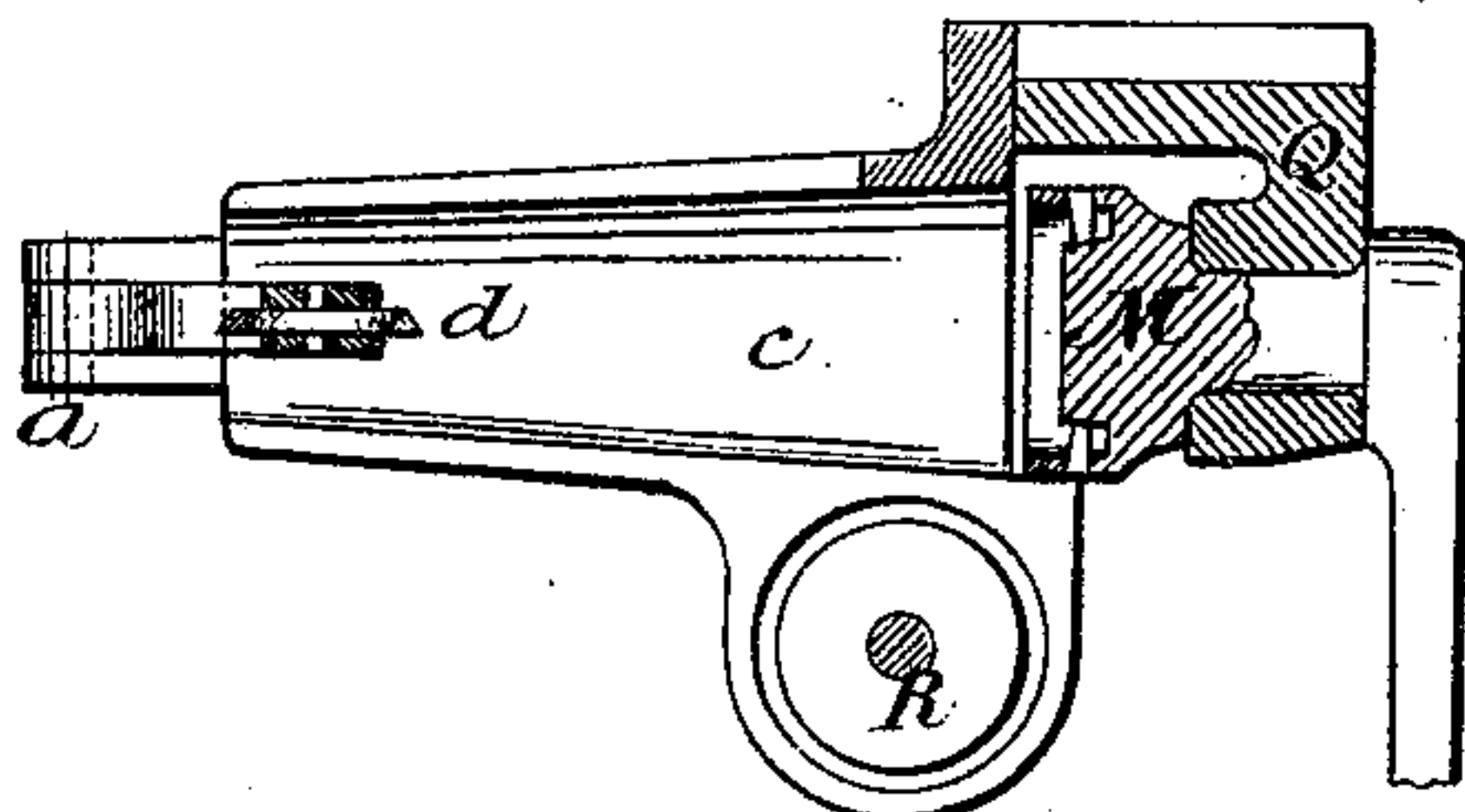


Fig. 4

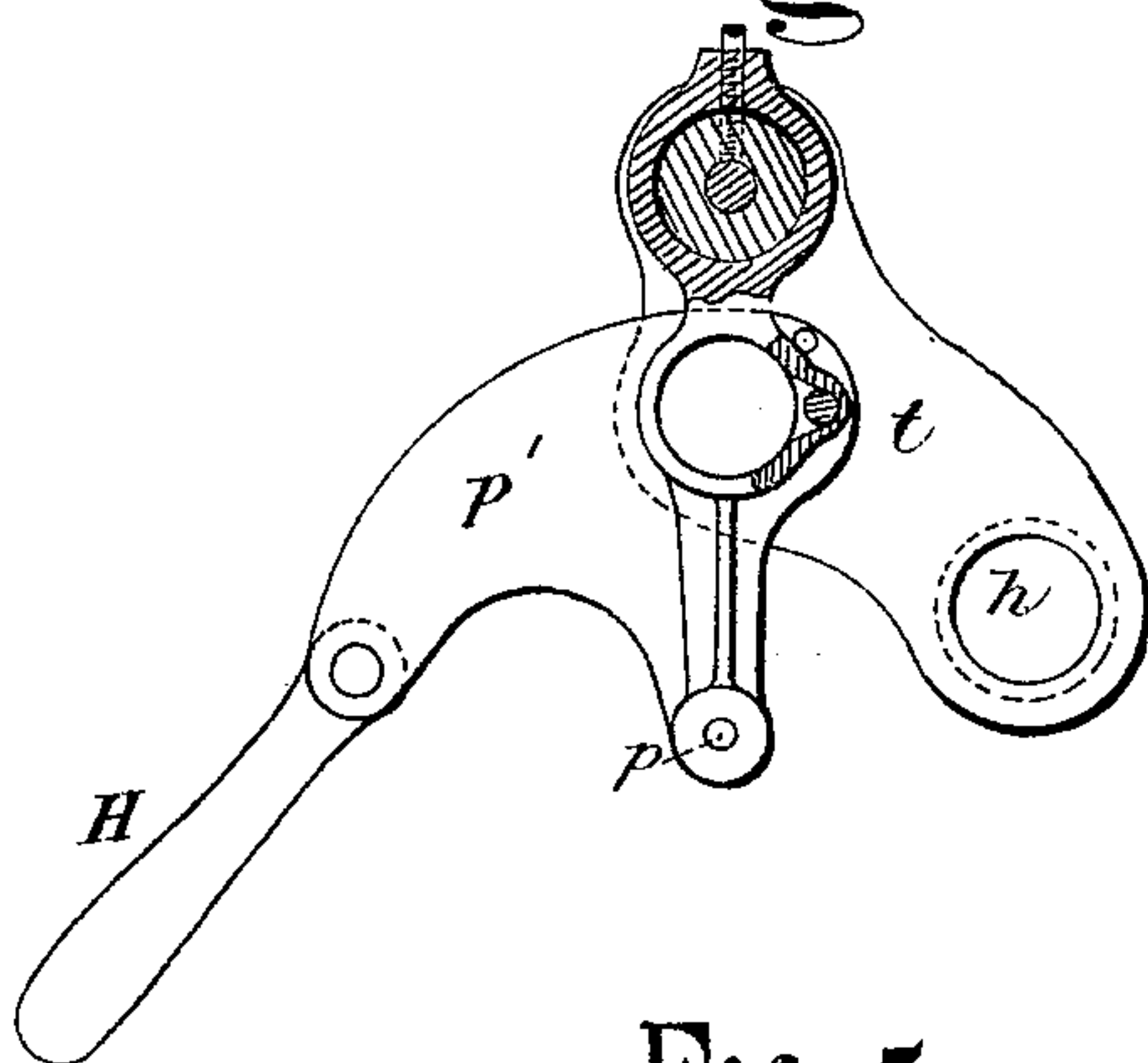


Fig. 5

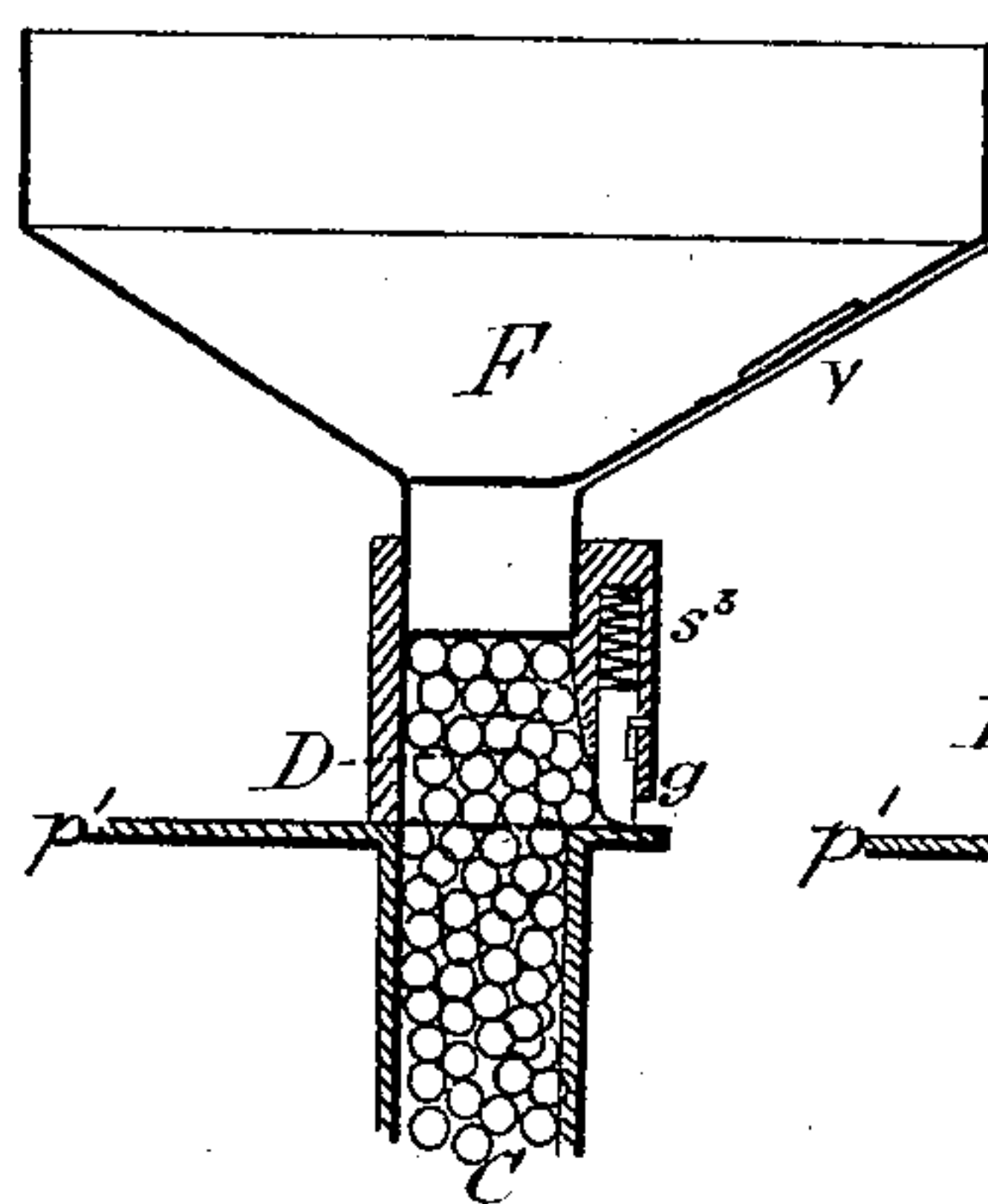
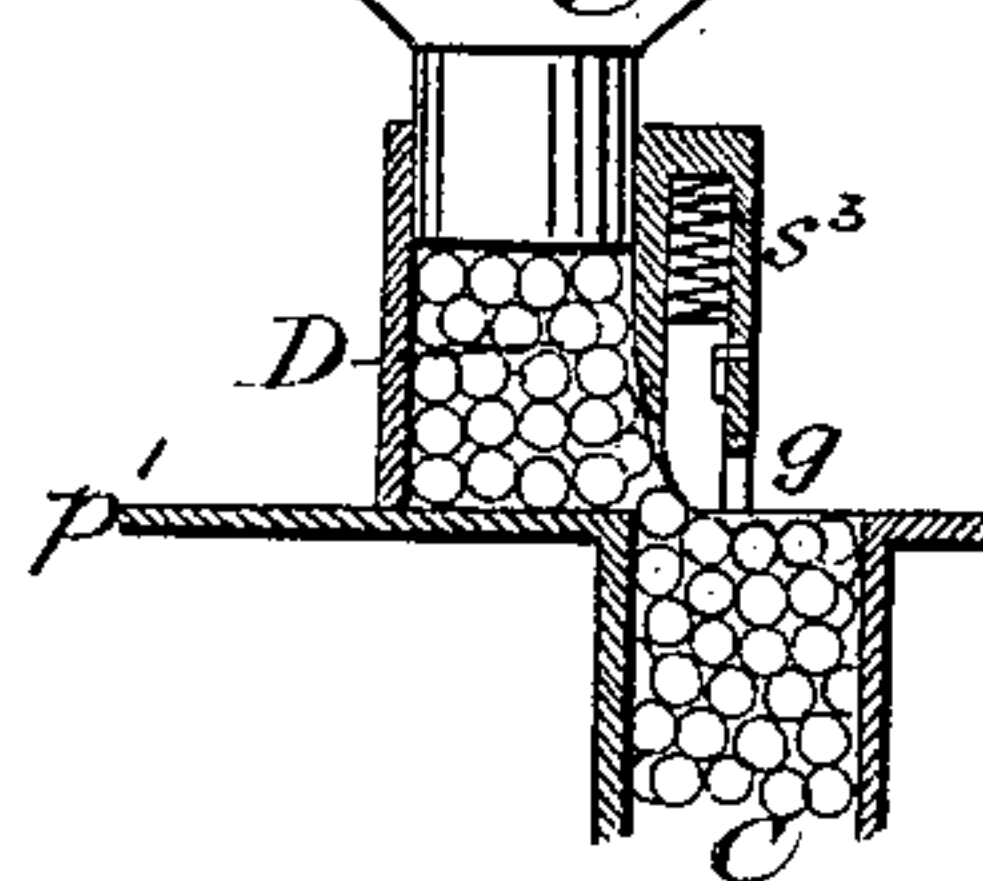


Fig. 6.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN CARTRIDGE-LOADING MACHINES.

Specification forming part of Letters Patent No. **152,263**, dated June 23, 1874; application filed February 4, 1874.

To all whom it may concern:

Be it known that I, CHARLES H. WEBB, of Brooklyn, in the State of New York, have invented certain new and useful Improvements in Apparatus or Machines for Charging and Finishing Cartridges, of which the following is a correct description:

My invention relates more especially to the kinds of charging-machines that are adapted to the uses of those who wish to charge cartridges for their own use; but it is also, in many respects, applicable to the more extended uses of the cartridge-manufacturer. The tools heretofore in use for the purposes of my invention have been found to be so inconvenient, and consist of so many parts liable to get lost, that annoyance and trouble result to the user of them; and they, moreover, may be considered somewhat dangerous, from the fact that the gunpowder made use of is greatly exposed to accidental ignition during the processes involved in filling cartridge-shells with the implements referred to.

The object of my invention is to overcome the objection above referred to, and also to produce a machine which will be at once simple, compact, and easily and rapidly operated.

Figure 1 shows a front view or elevation of the machine as it appears when ready for use, clamped by the screw s^2 upon the corner of the table T. Fig. 2 is a side elevation of the machine. Fig. 3 is a plan of the cradle c , into which the shell is laid and held during the process of crimping or turning the end to finish the charged cartridge. Fig. 4 is a plan of the swinging gage or charger, and its supporting-pivot p and table t . Fig. 5 exhibits the funnel F, into which the powder or shot is placed preparatory to passing through the delivery-pipe D into the charger C on its way to the shell; and it also shows the automatic gate g , which enables the operator to use the charger for shot as well as for powder. Fig. 6 also shows in vertical section the delivery-pipe D, the charger C filled with shot, and the gate ready to rise to accommodate a single shot offering resistance to the lateral motion of the charger.

From the body B of the machine, Fig. 2, formed at its base into the clamp E, attaching the machine to the table by the screw s^1 , a tube, t' , is erected, which serves as a column to support the receiver or funnel F, into which

is placed the material to be measured and separated into proper quantities on its way to the cartridge-shell, which is held directly below the hole h , over the nipple n under the table t , by the left hand of the operator, while, with the right hand, he operates the swinging telescopic charger C by means of the handle H, about a pivot, p , or center of motion, which, if preferred, can conveniently be made to coincide with the axis of the tube t' . The funnel F I provide with a closing device or shut-off of peculiar construction—viz., a gate on the interior and at or near the foot of the funnel, the handle of which follows the interior of the core to its base, or thereabout, instead of projecting through a slot in the funnel immediately where the gate is situated. I thus avoid the necessity of making an opening low down, through which dangerous material might escape, which would cut the tube of the funnel nearly in two, and at the same time insure ease of construction, simplicity, and corresponding cheapness.

The table t is supported upon the tube t' by the clamp k at such a height as will allow the telescopic charger C to contain the requisite quantity of powder or shot, and to ascertain this point readily the tube t' is graduated vertically, as shown at V in Fig. 1. The telescopic charger C consists of two tubes, the upper one of which is secured to and directly under an opening in the swinging plate p^1 , through which the material is allowed to pass whenever this opening is swung under the opening in the funnel F, as shown in Fig. 2. With the charger in this position, the material falls from the funnel F through and filling the telescopic tubes, and rests upon the table t , which forms the bottom of the charger, and prevents the escape of the material. The handle H now being used, the swinging plate p^1 is made to carry the charger and its contents along the surface of the table t till it arrives over the opening h , when it falls into the shell k^1 held below ready to receive it, the swinging plate p^1 having previously cut off communication from the funnel F above, so that in order to place the proper quantity of powder or shot in the shells, it is only necessary to fill the funnel and hold the empty shells one after another under the table t upon the nipple n , and at the same time swing the properly-adjusted charger back and forth once for each cartridge.

To keep the lower end of the telescopic charger in close contact with the table t , a spiral spring is coiled around the same in such a manner as to constantly tend to expand the charger in the direction of its length. Two or more tubes sliding into each other telescopically may be employed with spiral or other shaped spring to keep the charger extended. I prefer the spiral form shown in the drawing.

For powder and very fine shot the above-described swinging charger serves every purpose; but if the shot are of considerable size, it is found that the swinging charger, when filled with shot, has a tendency to jam those shot at the surface of the charger between the side of the opening in the plate p^1 and the lower edge of the delivery-pipe D , and thus stop the action of the machine. To overcome this difficulty, I make a V-shaped notch at the bottom of the delivery-pipe D , on the side against which the shot are pressed when the charger is swung away to convey its load of shot to the shell to be filled, and in the apex of the notch I place a sliding pin, which is held down upon the table by a spring, s^3 , and so shape the lower end of the pin to an incline as to form a gate to yield and allow any shot to pass which otherwise would prevent the operation of the charger. The V-shaped notch is shown dotted in Fig. 4, and the action of the gate g is shown in Fig. 6, which represents a single shot at the moment of passing under the gate, which either yields enough to allow the same to pass out with the rest of the charge, or only enough to permit the shot to rise above the plate p^1 , and remain inside the delivery-pipe D to pass out with the next charge. The V-shaped notch serves to reduce the opposing shot as they approach the apex to a single one, and, as above described, the gate accommodates that single one to pass out, or, yielding less than enough to allow it to pass out, makes room for it to rise up and remain inside. This feature of this machine permits one to use the charger for shot as well as for powder. The quantity of the charge is regulated by the distance between the plate p^1 and the table t , between which the telescopic charger is made to extend by means of the spiral spring s . The table t is fixed at the proper point, to allow the charger to receive the desired quantity by means of the clamp or set screw k , and the graduations marked upon the tube t' serve to indicate the quantities which the charger holds at place of adjustment of the table t . Two or more sets of graduations are made for powder and shot of various kinds.

The shells, having been charged with powder, are now ready to receive a wad to be rammed down upon it previous to charging it with shot. To effect this, the funnel F is removed, and the clamp-screw s^1 is loosened to set free the ramrod R , which is surmounted with the knob h' . The tube t' , through which the ramrod passes contains a spiral spring, so arranged as to throw the ramrod up till the

button b at the lower end of it rests against the bottom of the tube t' . The foot-plate A of the ramming apparatus is now regulated in respect to its height by means of the adjusting-screw s^4 , so as to conform with the length of the shell. K is the wad-compressor, which consists in its upper part of a short conical tube, and in its lower part of a cylindrical recess immediately below and concentric with the conical tube above, the recess being made to fit the external diameter of the shell, while the smaller end of the conical tube should exactly correspond to the internal diameter of the shell. To confine the ramrod down out of the way when not in use, I employ a notch, into which to turn and hold the head of the ramrod, after the manner of a button, or hold it by a catch working into a notch in the ramrod, or preferably by a screw, s^1 , which is made to clamp the ramrod in the desired position. The shells are placed one after another upon the foot-plate A , with their upper ends projecting up into the cylindrical recess in the compressor K . The wads are placed one at a time in the conical tube of the compressor, when a slight blow of hand upon the knob h' will force the wad down upon the charge of powder. After the shells have been charged with shot the last wad is driven down upon them in a similar manner to that described for placing wads over the powder.

The next part in order of description is the cutting device for reducing the length of the shells to suit the varying charges for different purposes. This consists of a cylindrical socket or tube, G , of the same diameter as the outside of the shell. Concentric with this tube, and slightly projecting into the same from the supporting-stud Y , is a cylinder, J , having a diameter a trifle less than the internal diameter of the shell. Corresponding with the plane of the tube G is a groove cut into the cylinder J , into which the principal blade b^1 of the knife N works or falls while cutting off the end of a shell. A secondary blade, b^2 , is fixed at right angles to the blade b^1 , and a corresponding longitudinal groove is made in the cylinder J to receive it. The use of the first-mentioned blade b^1 is to cut off the end of the shell at the desired point of its length, which may be regulated by a loose plug-stop, or by a screw-head projecting from the end of cylinder J into the shell. The function of the secondary blade b^2 is to split the shell longitudinally from the open end up to the point where it is to be severed and shortened, so that the ends cut off may not form rings upon the cylinder J , and thus clog and prevent the action of the parts. The knife is hung upon a pin, p^2 , and blade b^1 is held down upon the shell after the blade b^2 has passed through and below its thickness, so as to not interfere with the rotation of the shell, which is accomplished by the left hand of the operator, while the right manipulates the rectangular-bladed knife N . To finish the cartridge after charging with both powder and shot, it is necessary to crimp

or turn in the end of the shell. For accomplishing this purpose, I have formed a circular bed or cradle, *c*, Figs. 1 and 3, slightly longer than the shell, but having a corresponding circular cross-section of about one-third of the circle. One object of my dispensing with the full circle or tube used in other cartridge closing or "crimping" machines is the greater convenience which my device of a semi-circle or less affords, and to avoid employing the push-pin for extricating the cartridge from the cradle, which the device in common use makes necessary. At the right end of the cradle is fixed a cylindrical socket of a length about equal to the diameter of a shell, and terminated by a revolving head or crimper, *M*, supported in the bearing *Q*, and driven by the cranked handle *P*. To drive the shell forward to the crimper *M*, and at the same time hold it down to the cradle *c*, so that it may not revolve with the rotation of the crimper, I have devised the sharp-cornered gripping-wheel *d*, mounted upon the pin *o* in the lever *L*, which is hung on the joint *a* on a projection from the cradle *c*. The upper end of the lever *L* is provided with a handle for convenience of giving the necessary pressure.

It will be observed that with the application of a cover, *Q'*, to the funnel *F* during the process of measuring gunpowder into the shells, the same is much more protected from accidental ignition than if the powder were exposed in an open receptacle, subject to continued disturbance from dipping into the same to obtain the repeatedly required quantity, as is usual with the employment of the numerous tools in general use by sportsmen and others loading their own cartridges. To facilitate the removal of the funnel before the same is fully discharged of its contents, a sliding gate is provided, having a convenient handle outside of the funnel, by which the gate is made to slide and form a cut-off or valve-bottom to the funnel at its lower end, as shown at *r*, Figs. 1 and 5. To facilitate the operator in placing the cartridges to be rammed in the proper position, and to avoid, at the same time, the necessity of having to swing to one side or to remove the shelf or foot-plate, upon which the cartridge is to rest while the wad is being rammed into the cartridge, I remove one side of the tube below the wad-reducer, so as to allow the cartridge-shell to be placed upon the foot-plate by a side or lateral motion at right angles to the axis of the tube, instead of sliding it into the tube by an end motion, as is the case when a full-tubed cartridge-receptacle is employed.

I claim as my invention—

1. In cartridge-loading machines, a swinging or sliding receptacle or charger composed of tubes, through which the measured material passes, open at both ends, arranged telescopically, to permit adjustment of the capacity of the charger to hold the desired quantity of material, in combination with a cut-off or dividing-plate to separate the desired quantity

from the mass, and a second plate or table serving as a bottom to the measuring-receptacle or charger during the operation of making the separation, substantially as described.

2. In cartridge-loading machines, a self-acting gate which will yield and make room for a resisting portion of the material, so as to permit the passage of a sliding or swinging measuring-receptacle or charger, when it is obstructed in its motion during the operation of making the separation of the measured quantity from the mass, substantially as described.

3. In cartridge-loading machines, the combination of two or more measuring-tubes, sliding telescopically into each other, with a spring to keep the same extended longitudinally, substantially as described.

4. The fixed hub or stationary cylinder *J*, in combination with a knife for cutting off the surplus length of the cartridge-shells, substantially as described.

5. A pair of cutting-blades arranged so as to cut off the surplus length of the cartridge-shells, and also to split or cut open the same to prevent the formation of obstructing rings, substantially as described.

6. In machines for turning and finishing the ends of cartridges, a bed or cradle having about, or less than, a semicircular cross-section to receive the cartridge, substantially as described.

7. In machines for "crimping" or closing the ends of cartridges, a lever provided with a disk revolving upon an axis, the object of the lever being to restrain the cartridge from rotary motion by a clamping action, and at the same time force it forward during the operation of crimping or closing its end, substantially as described.

8. In cartridge-loading machines, a foot-plate, vertically adjustable, for the cartridge to rest upon during the operation of ramming, in combination with a cartridge-receiver open on the side, substantially as described.

9. In cartridge-loading machines, a cartridge-receiver open on the side, and having a flaring or bell mouth, substantially as and for the purposes set forth.

10. The combination, with the rammer and spring for receiving the same, of suitable means for confining the rammer down when required, substantially as described.

11. In cartridge-loading machines, a reservoir or funnel having a gate on the interior at or near its foot, the handle of which gate follows the interior of the funnel up for some distance, instead of projecting externally through an opening or slot directly opposite the gate, and closes the gate by being pushed downward, instead of across in the plane of the gate's normal position.

Dated at New York this 31st day of January, 1874.

Witnesses:

C. H. WEBB.

RICHD. A. PARKER,
HAMILTON E. TOWLE.