(No Model.) 2 Sheets—Sheet 1.

E. F. GENEVAY.

CARTRIDGE LOADING MACHINE.

No. 396,398. Patented Jan. 22, 1889.

Fig. 1.

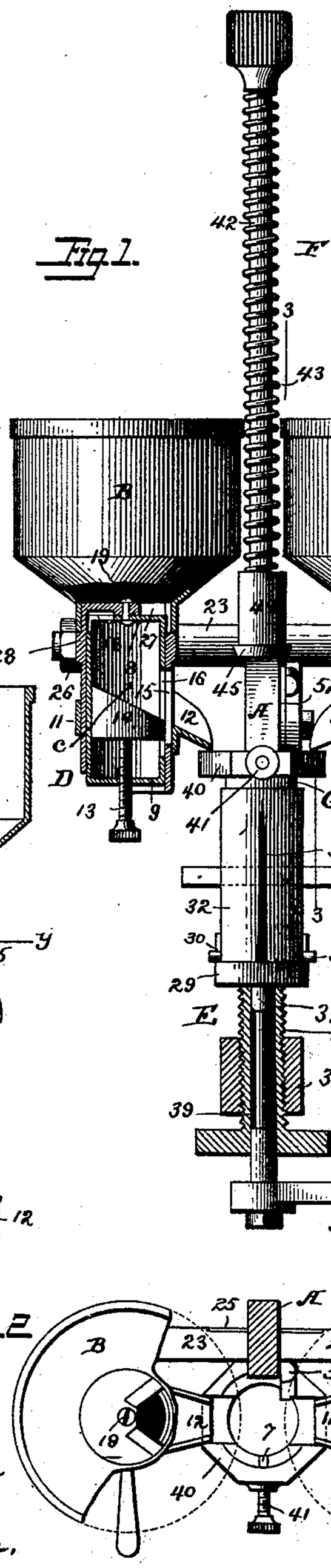

Fig. 6.

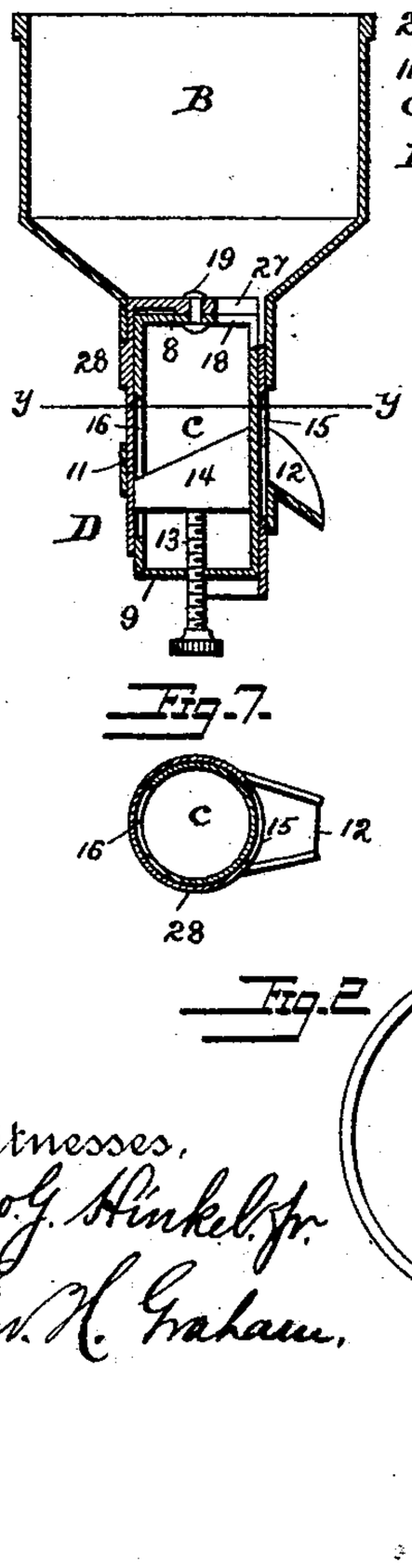

Fig. 5.

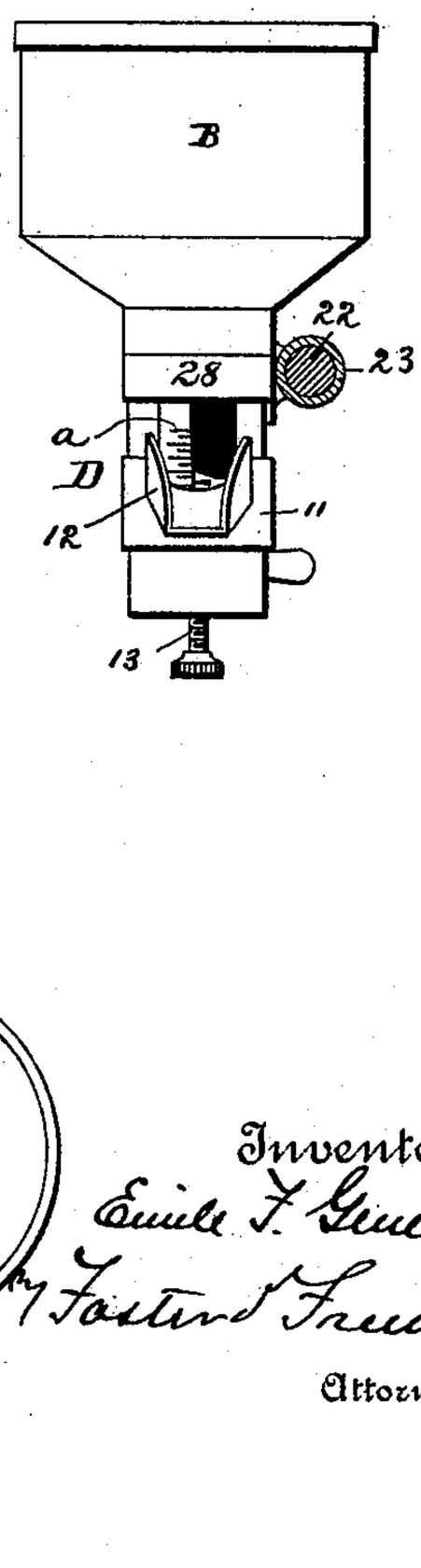

Fig. 7.

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

E. F. GENEVAY.

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Fig. 4.

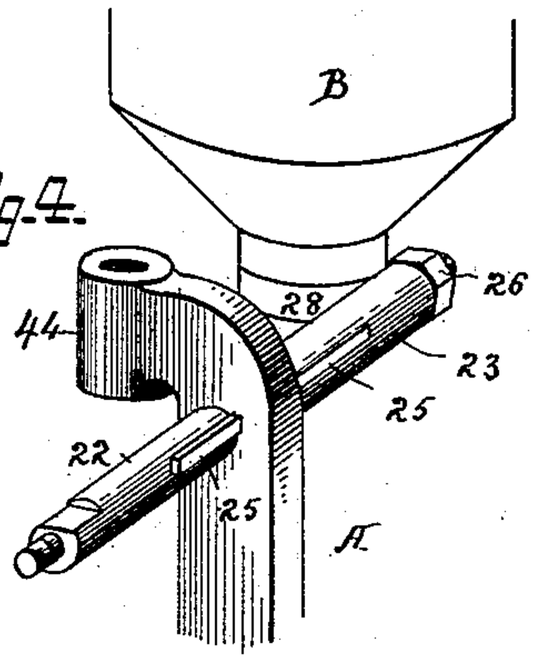


Fig. 8.

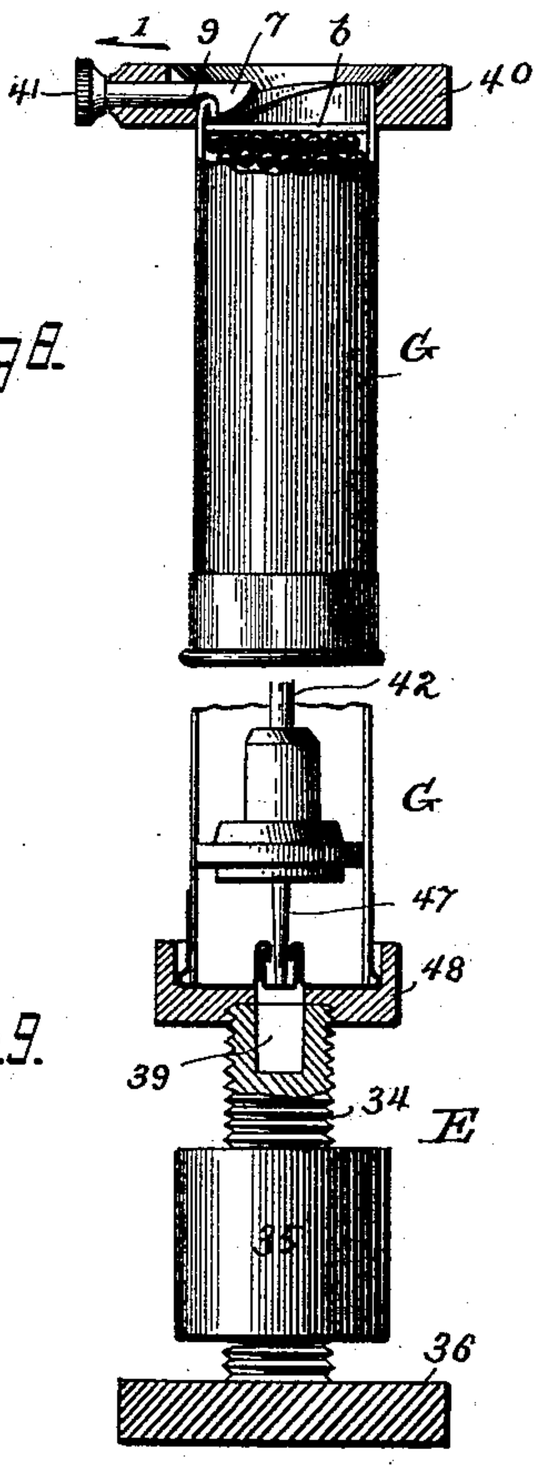


Fig. 9.

Fig. 3

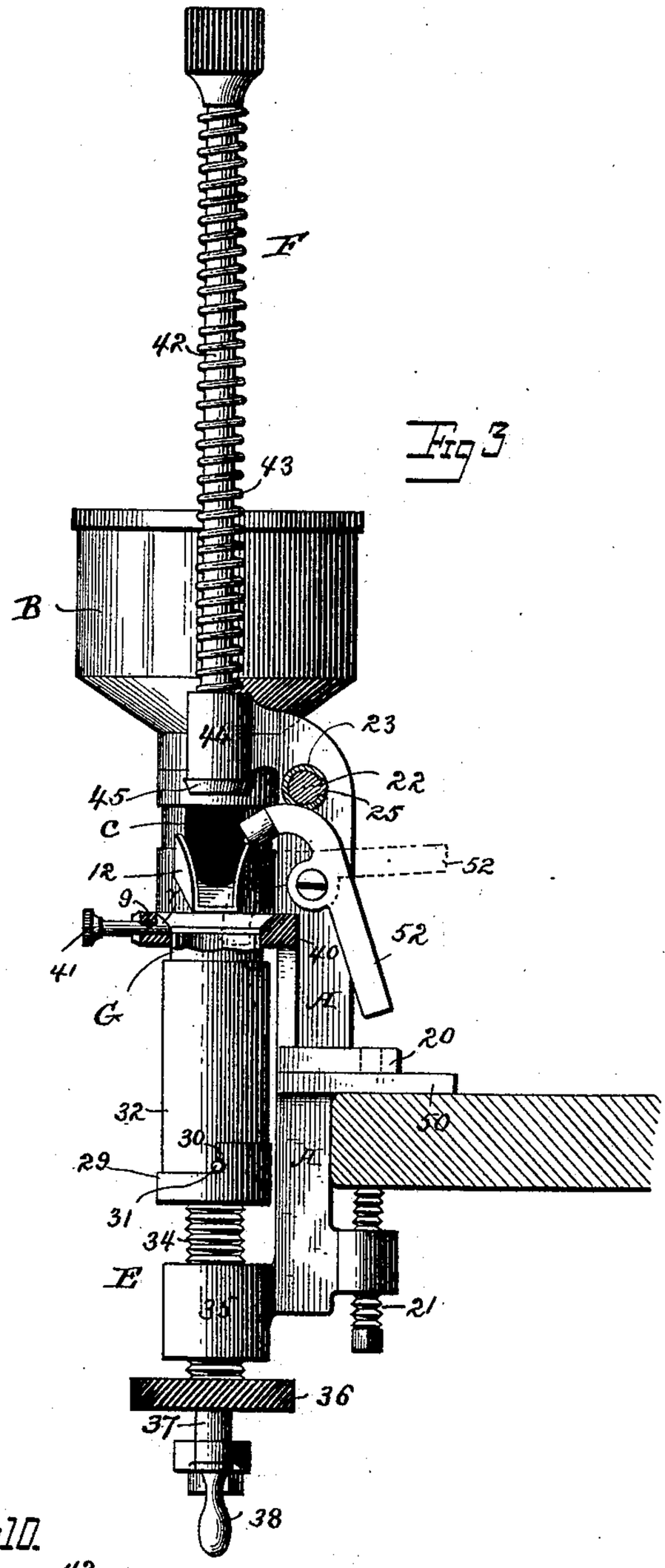
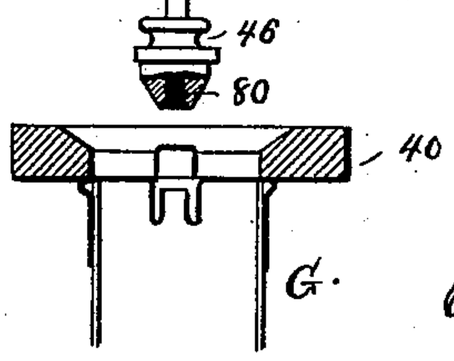


Fig 10.



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UNITED STATES PATENT OFFICE.

EMILE F. GENEVAY, OF CORINTH, MISSISSIPPI.

CARTRIDGE-LOADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 396,398, dated January 22, 1889.

Application filed May 3, 1888. Serial No. 272,685. (No model.)

To all whom it may concern:

Be it known that I, EMILE F. GENEVAY, born in Switzerland, but residing in Corinth, Alcorn county, Mississippi, eleven years, have invented certain new and useful Improvements in Cartridge-Loading Devices, of which the following is a specification.

This invention relates to devices for loading cartridges with powder and shot, and particularly that class of cartridges wherein the body is formed of paper and its end of metal, its object being, among other things, to so improve such devices as to render them easier to manipulate, more efficient in operation, and capable of being taken apart and packed in a small compass.

To this end the improvements consist in the novel structure hereinafter fully set forth.

In the drawings, which illustrate a practical embodiment of the improvements, Figure 1 is a front elevation of the cartridge-loader adjusted to the filling of a cartridge-shell, one of the measuring-valves and its casing and the holder for the shell being in section. Fig. 2 is a plan view thereof, portions of the hoppers and top of the supporting-frame being broken away to show underlying parts. Fig. 3 is a vertical sectional elevation of the same, taken on the line 3 3 of Fig. 1. Fig. 4 is a perspective view of a portion of the device looking at the rear of its supporting-frame. Fig. 5 is an elevation of one of the measuring-valve casings and hopper detached from the device. Fig. 6 is a vertical central section of the same looking in the same direction as in Fig. 1, the valve being in its reversed position. Fig. 7 is a horizontal section thereof, taken on the line *y y* of Fig. 6. Fig. 8 is an enlarged sectional elevation of the loader and a portion of a loaded cartridge-shell, illustrating its operation. Fig. 9 is a sectional elevation of the holder for the shell and the device for removing an old or exploded cap, illustrating its operation. Fig. 10 is a similar view of the devices adjusted for capping a cartridge-shell.

Referring to said drawings, it will be seen that the loader is mounted upon and carried by a single supporting-frame, A, provided with a rearwardly-extending flange, 20, and an adjustable clamping-screw, 21, for securing the loader to the edge of a table or bench to properly support it for use. The flange 20 may be re-enforced by a removable plate, 50, by which an enlarged bearing is provided to render the loading device steadier when secured in position.

The loader consists, essentially, of powder and shot hoppers B C, each terminating in suitable valves, D, and a holder, E, for the cartridge-shell that is adapted to hold and sustain the shell in position to be loaded with powder and shot fed from the respective hoppers, and a reciprocating plunger, F, for ramming the wads into place over the powder and shot for ejecting an exploded cap and inserting a fresh one.

The hoppers are each mounted upon the opposite ends of a cross-bar, 22, through supporting-sleeves 23, secured to the side of the casing 28 of the valves D. The cross-bar is supported in a hole made in the upper portion of the frame A, and is provided with a spline-shaped web, 25, that prevents it from turning therein, and which web also enters slots in the ends of the sleeves 23 and serves to hold them in a fixed position on the bar. The ends of the bar are screw-threaded and provided with nuts 26, to better confine the sleeves upon the bar. Thus, in dismounting the device for packing, the nuts will be removed and the supporting-sleeves of the hoppers slid longitudinally off from the cross-bar, and the bar itself then removed from its seat in the frame A. Instead of providing the cross-bar with the web 25, it is obvious that an irregular-shaped bar might be employed and serve the same purpose of being held against turning in the frame, and also hold the sleeves 23 against turning.

The powder and shot hoppers may be of the usual construction, and preferably of sheet metal having a bottom gradually tapering toward its center to direct their contents to an opening, 27, controlled by the valve D. This valve is seated in a casing, 28, that is preferably removably secured to the bottom of the hopper and extends downward therefrom, and it consists of a cylinder, 17, having closed ends 8 9, that provide a receiving-chamber, *c*, which cylinder is mounted to oscillate in the casing upon a central pivot, 19. The upper

end of the casing is provided with the opening 27, and the adjacent end of the valve-cylinder is provided with a similar opening, 18, that is adapted to register with said opening 27 when the valve is turned for that purpose, as in Fig. 6, the remaining portion of its end 8 serving to close said opening 27 in the position of the valve in Fig. 1. The valve-cylinder is also provided with a side discharge-opening, 16, that registers with a similar opening, 15, in the casing 28. The openings 18 16 are so disposed with relation to each other that when the opening 18 registers with the opening 27 to permit the powder or shot to pass into the receiving-chamber *c* of the valve the discharge-opening 16 is closed by the walls of the casing 28, as in Fig. 6; and when the said discharge-opening is in register with the opening 15 in the casing the end 8 of the valve-cylinder is in position to close the opening 27, from which it will be seen that a quantity of powder or shot may be fed into the valve-chamber, its feeding-opening be closed, and the powder or shot so held by the chamber be discharged therefrom into the shell, so that at no time is the opening in the hopper and the discharge-opening through the casing in position to permit the contents of the hopper to pass freely therefrom.

In order to vary the quantity of powder and shot delivered by the valve and capacitate it to deliver predetermined quantities thereof, I provide it with a movable false bottom, 14, that is capable of being raised or lowered to diminish or increase the size of the chamber *c* through a screw-threaded adjusting-rod, 13, and the side of the valve-cylinder may be provided with graduations *a*, Fig. 5, and the movable bottom with an indicating-mark, by which the capacity of the chamber may be indicated.

The valve-casing is provided with a spout, 12, mounted on a ferrule, 11, movable on the casing, so that the position of the spout may be varied to correspond to any change in position of the bottom 14, and the latter is sloped in the direction indicated in the drawings, so that the contents of the chamber *c* may be quickly discharged.

The plunger F consists of a rod, 42, mounted to reciprocate between the hoppers in a bearing, 44, formed on the frame A, having a spring, 43, to sustain it in its raised position out of the way of the end of the shell, and having a removable end, 45, adapted to enter the shell to drive the wads to their proper place.

The holder E is centrally located some distance below the hoppers B and C and immediately under the reciprocating plunger F, and consists of a vertically-adjustable supporting-spindle, 34, held in a screw-threaded hub, 35, forming a portion of the frame A. The spindle is screw-threaded to pass said hub, and is provided with a disk, 36, by which it may be turned to adjust its height. Upon the end of the supporting-spindle is seated a cup-shaped rest, 29, provided with a stem, 37, that extends through an opening, 39, in the spindle, and at its lower end is provided with a crank, 38, by which the rest 29 may be revolved on the spindle and independently thereof.

The cartridge-shell G is seated on its flanged end in said cup-shaped rest 29, and extends upward to the under side and into the central opening in a fixed bracket, 40, extending from the front of the frame A, the extent to which the end of the shell is projected into said opening being regulated by the adjustment of the spindle 34. The cup-shaped rest has a portion of its vertical wall cut away, as seen in Figs. 1 and 3, to permit the ready insertion of a sustaining-sleeve, 32, that is first passed over the shell, so that its end rests upon the flange of the shell and is divided longitudinally, as at 33, so as to give it a slight spring-like action, whereby, when it is seated in the rest, it will snugly fit the same and help to sustain the shell in a vertical position. The lower end of the sleeve is also provided with studs 31, that enter notches 30 in the walls of the rest, so that the sleeve may turn with the rest when the latter is rotated, for a purpose now to be described. After the cartridge-shell has been loaded and the plunger F has rammed the covering-wad *b* in position over the shot in the shell, as in Fig. 8, the end of the shell must then be turned over, so as to confine the load. For this purpose I provide a beading-tool, 41, mounted in the bracket 40, and adapted to be adjusted into and out of position in said bracket, so that during the loading of the shell it will not obstruct its upper end, as is seen in Fig. 3. This beading-tool consists of a short spindle having a beading-notch, 9, and a projection, 7, at its end, which notch and projection, when the tool is pushed inward over the end of the shell, are turned from the position they occupy in Fig. 3, wherein the projection enters a recess in the bracket, to that shown in Fig. 8. In this latter position of the beading-tool the shell may then be moved upward by adjusting the position of the supporting-spindle 34, so as to present a sufficient length of the shell end to the action of the beading-tool. When this has been done, the shell will be quickly rotated by means of the crank 38, causing the entire end of the shell to pass under the beading-tool, and thus beaded or turned over. The loaded shell may then be removed by lowering the supporting-spindle 34, so as to free its end from the opening in the bracket 40, when the shell and the sustaining-sleeve may both be withdrawn from the rest 29 and the sleeve slipped over the end of the shell, and the loading device be ready to load another shell.

The beading-tool 41 may be supplemented by a beading-finger, 52, pivoted to the side of the frame A and adapted to be rocked down, as indicated by dotted lines, Fig. 3, and serve the purpose, as the bead formed by the tool 41 passes between its end and the bracket, of pressing the beaded edge positively. Its use,

however, is not essential, as the beaded edge may be again passed under the tool 41, while the latter is pulled slightly in the direction of the arrow 1, Fig. 8, to press against the bead and flatten it to a certain extent.

In many instances shells already fired one or more times will be used, and hence it is desirable to adapt the device to remove the exploded cap from the shell and to replace it with a fresh one. For this purpose the end 45 of the plunger F will be removed or have added to it a pointed tool, 47, and the cup-shaped rest will be removed from the end of supporting-spindle 45 and the end of the shell be seated upon said spindle, so that the exploded cap overlies the central opening, 39, therein, when the plunger will be moved downward into the shell to cause its tool 47 to press against the cap and eject it from the shell and out through said opening in the spindle, as seen in Fig. 9. The shell may be better seated upon the end of the spindle by providing said end with a removable flanged cap-piece, 48, having a central opening in line with that in the spindle to permit the old cap to be discharged.

In order now to replace the ejected cap with a fresh one the shell will be turned upside down, so that its metal or flanged end will lie immediately under the bracket 40, and the tool 47 removed from the end of the plunger 42 and a capping end, 46, secured in its place, as in Fig. 10. The contacting end of this capping end has a central recess, 80, so that its circumferential edge will alone contact with the end of the cap, and thus obviate any danger of the fulminate exploding in driving the cap to its seat in the shell. When the shell has thus been capped, it is then ready to be loaded in the manner previously described, the capping-piece 46 being removed and the end 45 substituted therefor, and the cup-shaped rest 29 substituted for the flanged cap-piece 48, if the latter be employed.

From the foregoing it will be seen that the improved loading device is capacitated by very slight adjustment to the loading of cartridge-shells already once fired by first ejecting the exploded cap and recapping the same.

The chambered valves may be readily adjusted to feed positively any predetermined load of powder and shot, and hence different sizes of shells may be loaded effectively—as, for instance, a No. 10 and a No. 12 shell.

The device may be readily dismounted and packed in a small compass, so that it may be carried with little inconvenience.

What I claim is—

1. In a cartridge-loading device, the combination of a supporting-frame, a pair of hoppers for the powder and shot, a removable bar, 22, and sleeves connected with said hoppers and adapted to be supported by said bar upon opposite sides of the frame, substantially as described.

2. In a cartridge-loading device, the combination of a supporting-frame, a pair of hoppers for the powder and shot, a removable bar, 22, having a web, 25, and sleeves connected with said hoppers adapted to surround the bar upon opposite sides of the frame, and having slotted ends to receive a portion of the web, substantially as described.

3. The combination, with a hopper, of a rotatable chambered valve connected thereto, having two openings, one at its end for permitting a quantity of material to enter the valve, and the other at its side for discharging such material therefrom, substantially as described.

4. The combination, with a hopper, of a valve-casing, a rotatable chambered valve mounted therein and having closed ends, one of said ends provided with an opening registering with the hopper-opening, and a second opening in the side of the valve registering with a discharge-opening in the casing, substantially as described.

5. The combination, with a hopper, of a valve-casing connected thereto, a chambered valve mounted in said casing and having closed ends, one of which is provided with an opening registering with the hopper-opening, and the other end providing an adjustable bottom for varying the size of the chamber, substantially as described.

6. The combination, with a hopper, of a valve-casing connected thereto, a rotatable chambered valve pivotally mounted in said casing, a movable bottom in said valve, and an adjusting-rod for moving the bottom, substantially as described.

7. The combination, with a hopper, of a valve-casing connected thereto, a chambered valve mounted in said casing, and a movable end for varying the size of the chamber, of an adjustable spout carried by the casing, substantially as described.

8. The combination, with a hopper, of a cylindrical casing connected thereto having an opening, 27, communicating with the hopper and a side discharge-opening, a cylindrical chambered valve mounted in said casing, having an opening in its end adapted to register with the opening 27 in the casing, and a side discharge-opening adapted to register with the similar opening in the casing when the valve is moved to close the other openings, substantially as described.

9. In a cartridge-loading device, the combination of a vertically-adjustable cartridge-supporting spindle, 34, a cup-shaped rest mounted on said spindle and having a crank for rotating it, a bracket, 40, for sustaining the upper end of the cartridge, and a reciprocating plunger, F, substantially as described.

10. In a cartridge-loading device, the combination of a vertically-adjustable cartridge-supporting spindle, 34, a cup-shaped rest mounted on said spindle and having a crank for rotating it, a divided sustaining-sleeve, 32, and a bracket, 40, for sustaining the upper end of the cartridge, substantially as described.

11. In a cartridge-loading device, the com-

bination of a vertically-adjustable cartridge-supporting spindle, 34, having a central opening, a cup-shaped rest, 29, having a stem, 37, extending through the opening in the spindle, and a crank for rotating the rest, a bracket, 40, and a beading-tool, 41, substantially as described.

12. In a cartridge-loading device, the combination of a cartridge-supporting spindle, 34, a rotatable rest, 29, mounted on said spindle, a bracket, 40, for sustaining the end of the cartridge-shell, and beading-tool 41, movably mounted in said bracket and having a beading-groove, 9, substantially as described.

13. In a cartridge-loading device, the combination of a rotatable rest for the cartridge, a fixed bracket, 40, for sustaining the upper end of the cartridge, and a beading-tool seated in said bracket and adapted to be moved into operative position, substantially as described.

14. In a cartridge-loading device, the combination of a cartridge-supporting spindle, a rotatable rest carried thereby, a fixed bracket, 40, for sustaining the upper end of the cartridge and having a central opening for the passage of the load into the cartridge, and a beading-tool seated in said bracket and adapted to be moved into operative position over the cartridge, substantially as described.

15. In a cartridge-loading device, the combination of a rotatable rest for the cartridge, a fixed bracket, 40, for sustaining the upper end of the cartridge, and a beading-tool seated in said bracket and having a groove, 9, and a projection, 7, that is adapted to be moved to place said groove and projection in operative position, substantially as described.

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

EMILE F. GENEVAY.

Witnesses:

JOSHUA L. FLETCHER,

R. T. WILLIAMS.