(No Model.) 3 Sheets—Sheet 1.

E. A. FRANKLIN.

MACHINE FOR LOADING CARTRIDGES.

No. 347,030. Patented Aug. 10, 1886.

Fig. 1.

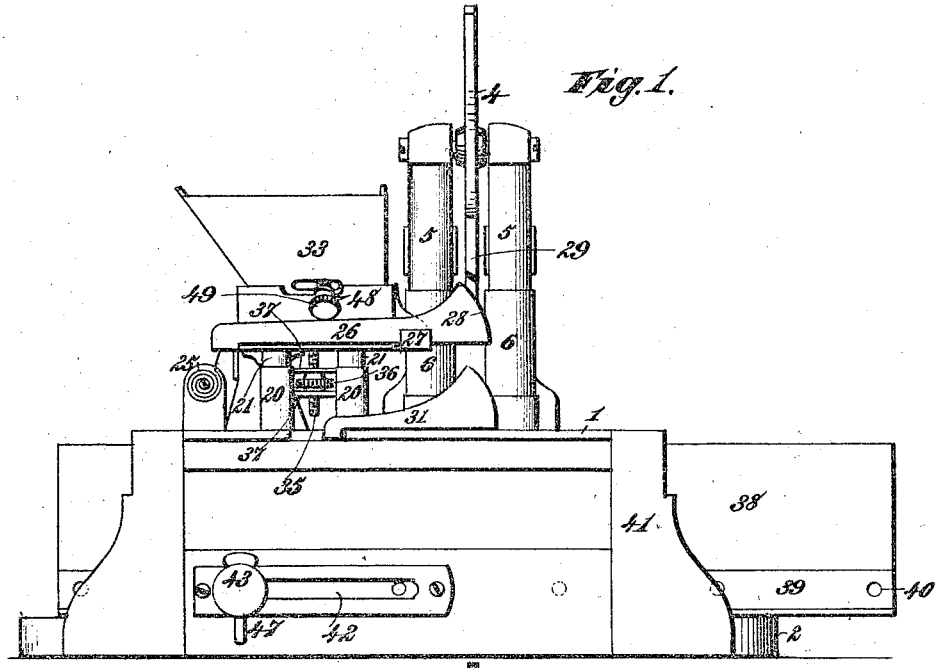
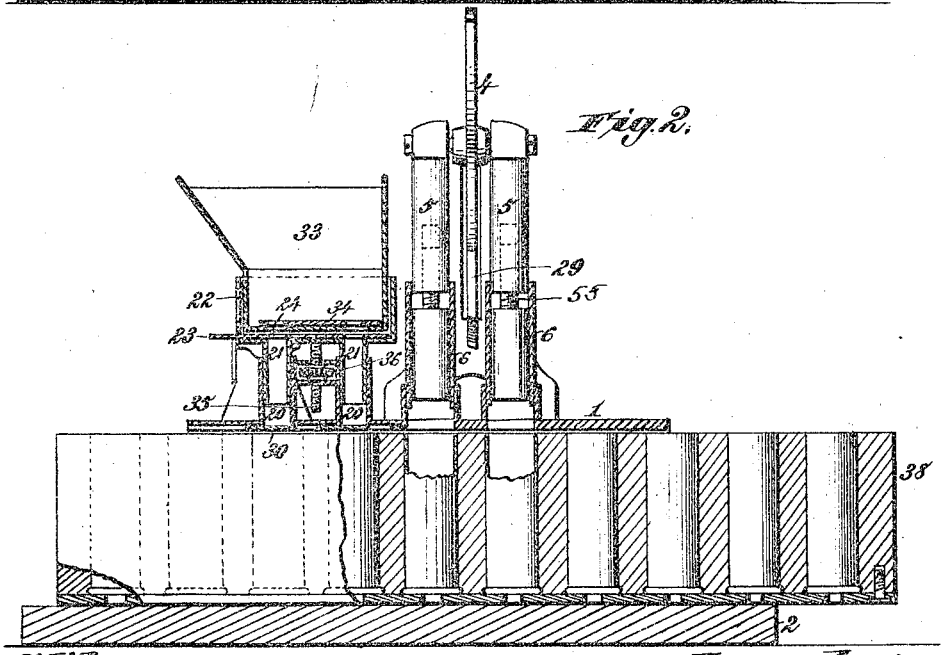


Fig. 2.



Witnesses.
Robert Burnett.
J. A. Rutherford

Inventor.
Edward A. Franklin.
By James L. Norris.
Atty.

(No Model.) 3 Sheets—Sheet 2.

E. A. FRANKLIN.

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Fig. 3.

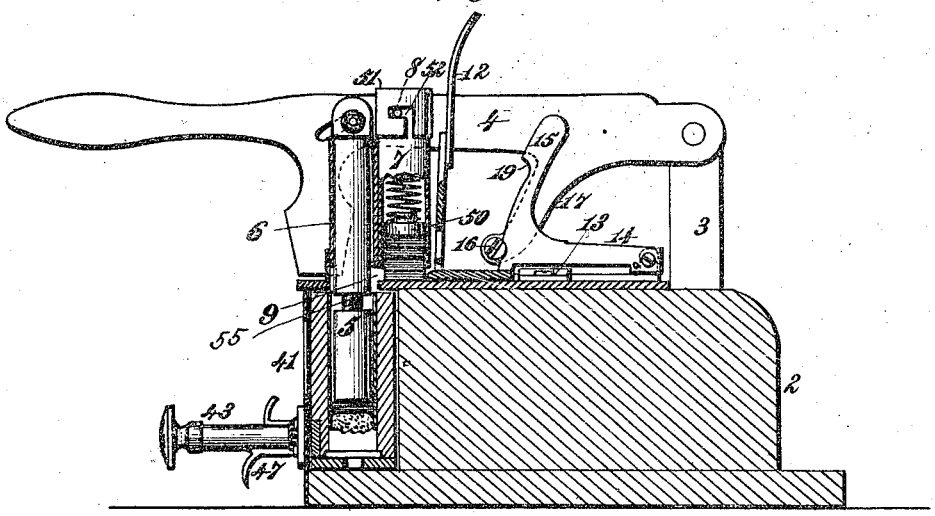


Fig. 4.

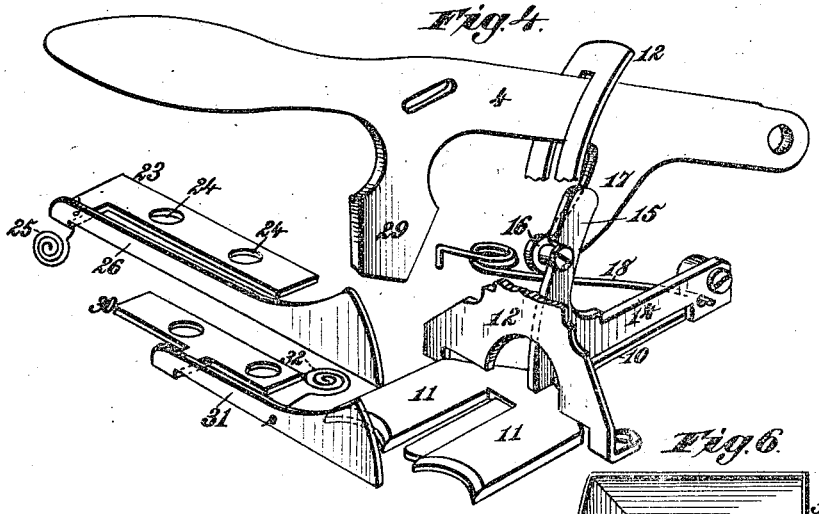


Fig. 6.

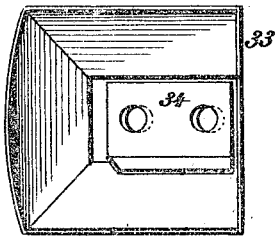
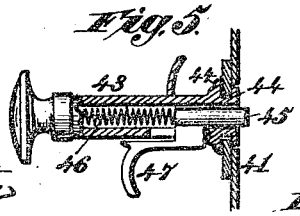


Fig. 5.



Witnesses.
Robert Everett.
J. A. Whitehead

Inventor.
Edward A. Franklin
By James L. Norris.
Atty

(No Model.) 3 Sheets—Sheet 3.

E. A. FRANKLIN.

MACHINE FOR LOADING CARTRIDGES.

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Fig. 7.

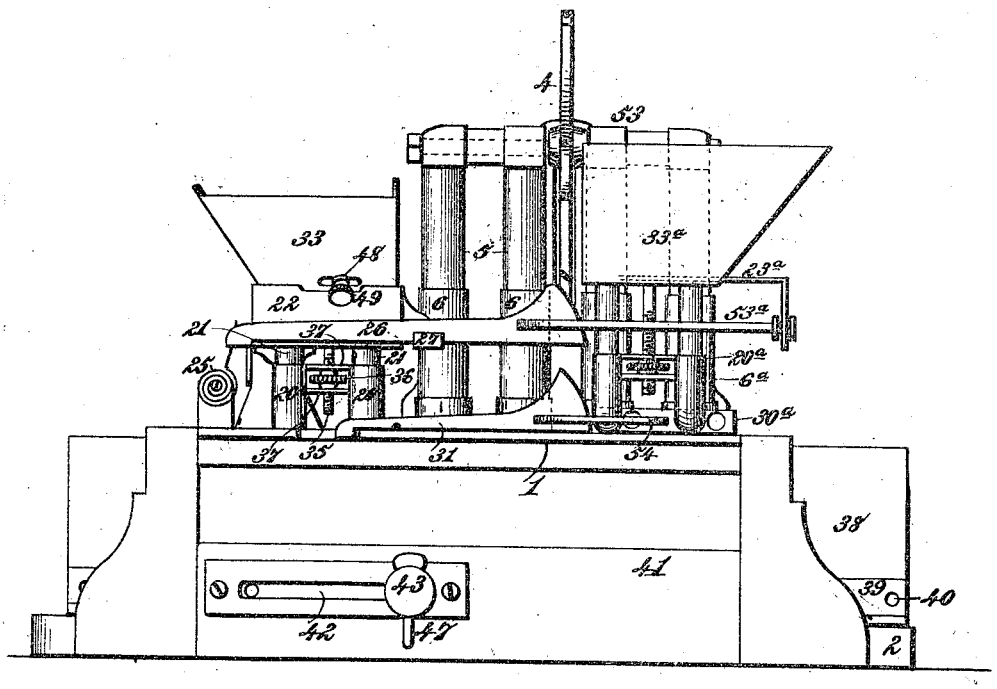
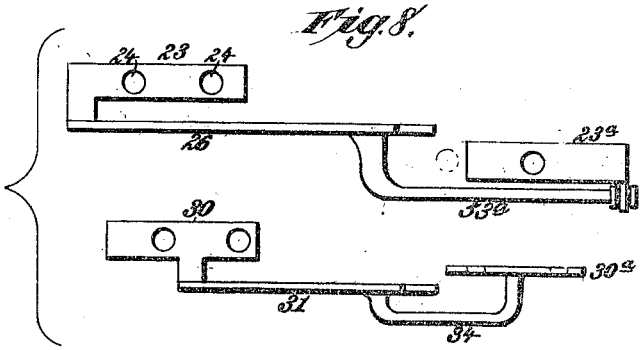


Fig. 8.



Witnesses.
Robt Everett.
J. A. Rutherford

Inventor.
Edward A. Franklin.
By James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

EDWARD A. FRANKLIN, OF BRENHAM, TEXAS, ASSIGNOR TO BAILEY, FARRELL & CO., OF PITTSBURG, PENNSYLVANIA.

MACHINE FOR LOADING CARTRIDGES.

SPECIFICATION forming part of Letters Patent No. 347,030, dated August 10, 1886.

Application filed December 28, 1885. Serial No. 186,918. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. FRANKLIN, a citizen of the United States, residing at Brenham, in the county of Washington and State of Texas, have invented new and useful Improvements in Machines for Loading Cartridges, of which the following is a specification.

My invention relates to machines for loading cartridge-shells; and the purpose thereof is to provide mechanism by which the several steps in the process of loading shall be automatically performed. It is also my purpose to so organize the mechanism that the measurement of the powder, the inserting of the wad, the load of shot, and its insertion and confinement in the shell may all be effected by the same mechanism, either simultaneously or by successive operations.

It is my further purpose to provide means for feeding the wads to the shells, whereby the failure of the supply shall effect an immediate and automatic stoppage of the mechanism, thereby calling attention to the deficiency.

It is also a purpose of my invention to supply novel means for measuring the charge and for cutting off the hopper supply and the charger automatically and successively.

It is a further purpose of my invention to supply novel mechanism for feeding and measuring the shot from the shot-hopper to the chargers and shells, and for cutting off the hopper and chargers successively.

The invention consists in the several novel features of construction and combinations of parts hereinafter fully described, and definitely pointed out in the claims annexed to this specification.

Referring to the accompanying drawings, Figure 1 is a front elevation of the machine. Fig. 2 is a vertical section taken through the hopper and plungers and longitudinally of the charging-box. Fig. 3 is a vertical transverse section in the plane of the lever operating the plungers. Fig. 4 is a perspective view of the several working parts in detail in proper relative arrangement. Fig. 5 is a longitudinal section of the slide arm and bolt operating the charging-box. Fig. 6 is a plan view of the powder-hopper. Fig. 7 is a front elevation showing a modification of the mechanism shown in Fig. 1. Fig. 8 is a detail plan view of the devices connecting the cut-offs of the two hoppers and chargers of Fig. 7.

In the said drawings, the reference-numeral 1 designates the bed-plate of the machine mounted upon a suitable block, 2, in which is formed a chamber underlying the front edge of the bed-plate. Upon the latter is mounted upon a bracket, 3, a lever, 4, carrying the plungers 5, which may be of any number, although for sportsmen's use I prefer using either two, as shown in Fig. 1, or four, as in Fig. 7. These plungers reciprocate vertically through the bed-plate and are guided by metallic guides 6, directly behind which are placed the wad-holders 7, composed of upright tubes of suitable length and size, each having pins or studs 8, projecting from opposite sides near the top for a purpose presently to be explained.

The bottoms of the wad-holders are formed by the bed-plate 1, and upon the front side of each, adjacent to said plate, is formed a semi-annular opening, 9, (see Fig. 3,) to permit the wads to pass into the guides 6.

Lying upon the bed-plate, behind the wad-holders, is a flat plate, 10, having at its forward end a fork, 11, which reciprocates between the legs of an upright bracket, 12, and guided also by a loop, 13, riveted upon the bed-plate. The extremities of the fork 11 are cut out upon an arc of a circle of such size as to substantially fit the edges of the wads, and the branches of said fork enter openings in the lower ends of the wad-holders, as shown in Fig. 3.

Upon the top of the plate 10 is mounted a vertical plate, 14, having an arm, 15, the forward edge of which is curved and engages with a friction-roll, 16, journaled on a bracket, 17, depending from the lever 4. Mounted upon the bed-plate and engaging with the plate 14 is a spring, 18, which normally throws the plate forward toward the wad-holders. By reciprocating the lever 4 therefore, the fork 11, which feeds the wads to the plungers 5, is thrown backward and forward. A shoulder, 19, is formed on the front edge of the arm 15, to arrest the upward stroke of the lever 4.

Rising from the bed-plate 1 at the right

hand (proper) of the plungers are the measuring-chargers 20, composed of two or more tubes having each a telescoping section, 21, the upper end of which is attached to and opens into a hopper-box, 22. Upon the floor of this box is arranged a slide-plate, 23, having openings 24, which in one position of the plate register with the open ends of the tubes of the chargers, and in another position close said openings. One end of this plate projects beyond the end of the hopper-box, and engages with a spring, 25, mounted on the bed-plate, and normally throwing the cut-off into position to give open communication with the chargers. Upon the projecting end of said plate or cut-off is also mounted a slide-plate, 26, which lies against the front of the hopper-box and receives support from a loop, 27, upon the other end of the box. The end of the slide-plate 26 is brought under the lever 4, and its edge is curved, as shown at 28, Fig. 1, to engage with a striker, 29, carried by the lever, by which the cut-off 23 is thrown back against the action of the spring 25, and the openings 24 closed. Beneath the chargers 20, and lying against the under face of the bed-plate, is a second and similar cut-off, 30, actuated by a second and somewhat similar slide-plate, 31. As this latter is placed beneath the slide-plate 26, the action of the lever 4 is successive, operating first one cut-off, 23, and then the other, 30, said cut-offs being retracted, the former by the spring 25 and the latter by a similar spring, 32, Fig. 4, in reverse order—*i. e.*, the cut-off 30 opens as the first, 23, closes.

The hopper-box 22 receives a removable hopper, 33, having openings in its bottom which register with the openings 24, and the hopper-bottom is also closed by an independent cut-off, 31, to enable it to be removed from the hopper-box at any time, for a purpose presently to be shown.

The construction heretofore described is such that the distance between the centers of the chargers 20 and guides 6 is the same, and the chargers are also equal in number to the number of plungers employed, for obvious reasons.

In order to provide for the necessity of using loads of different measurement, the telescoping tubes 21 and the hopper-box mounted on them are made vertically adjustable by means of a threaded rod, 35, depending from the bottom of the hopper-box, and engaging with a thumb-nut, 36, which lies between two supporting-plates, 37, by which the hopper-box and tube-sections 21 may be raised and lowered and the capacity of the chargers increased or diminished. A graduated scale may be marked upon one or both of the telescoping sections, to guide the operator in making the adjustment.

The cartridge-shells are arranged in chambers in a charging-block, 38, containing any desired number of such chambers arranged in one consecutive series, the distance between their centers being equal to that between the centers of the chargers and plunger-guides. This block is provided with a metal strip, 39, running along one vertical face at or near its bottom, and provided at intervals with openings 40. The said block is arranged to slide in a chamber beneath the front edge of the bed-plate 1, wherein it is guided by a front vertical plate, 41. In the latter is formed a horizontal slot, 42, which receives the end of a bolt, 43, having disks 44 lying against opposite faces of the plate 41, and allowing the bolt to slide freely in its slot. Within the bolt is placed a dog, 45, Fig. 5, normally pushed outward by a spring, 46, and drawn back by a trigger, 47. The position of the parts is such that as the end of the charging-block enters the chamber behind the plate 41 (the dog 45 being retracted for such purpose) the bolt 43, being pushed to the outer end of the slot 42, will engage its dog 45 with the first opening 40 in the base of the charging-block. If, now, the bolt is drawn to the opposite or inner end of the said slot, it will carry the charging-block to the point, where the first two shells in the block will lie under and register with the openings in the lower ends of the chargers 20. Having received their load of powder, the bolt is slid back to engage with the next opening in the block, and again carried forward, bringing the loaded shells under the plungers, ready to receive the wads, and expressing the two succeeding shells to the chargers. It may be remarked that this mode of feeding the charging-block may be used on any machine, no matter how many shells are loaded at once, it only being necessary that the slot 42 shall be of the length required.

The operation of the parts thus described is as follows: Powder is put in the hopper 33, which is then placed in the hopper-box 22, and the cut-off 31 opened by a pin, 48, moving in a slot in the hopper-wall, and having a set-nut, 49, turning thereon to lock the cut-off in position. Wads are placed in the wad-holders 7, and the charging-block, filled with empty shells is introduced and moved under the chargers, as already explained. The lever 4 is now raised, releasing both the slide-plates 26 and 31, closing the cut-off 30 and opening 23. The chargers 20 are at once filled from the hopper, and the lever 4 being then thrown down, the upper cut-off, 23, is closed and the lower one, 30, is opened, allowing the powder to run into the shells from the chargers. The charging-block being now moved along, the charged shells are brought under the plungers, and the lever 4 being raised to again fill the chargers, two wads are taken out of the wad-holders by the fork 11 and carried into the guides 6, beneath the plungers, which descend upon the next movement of the lever and drive the wads home. These latter are fed downward in the holders 7, as follows: A head, 50, of suitable size, is fastened upon one end of a spiral spring, and the latter is attached by its other end to and inside of a cap, 51, having bayonet-joint slots 52, engaging with the pins 8 on the wad-holders. The tension of these springs

holds the wads down and presses them forward as each is taken out in succession, until, finally, as the last wad is consumed, the driving-head 50 is brought down upon the floor of the wad-holder. As this head is too thick to pass out of the slot 9, it follows that upon the consecutive upward movement of the lever the fork will not be thrown forward, and attention will thereby be directed to the fact. After the shells have all been filled with powder and received the wads, the hopper 33 may be removed, first closing the cut-off 34, and a shot-hopper of similar construction substituted, whereupon the operation is repeated, the only difference being that shot is loaded instead of powder. I may, however, load the powder and shot at the same time by a duplication of certain parts. In Fig. 7 I have shown such an organization, in which four plungers are carried by the lever 4 on a cross-head, 53, two of said plungers driving the wad for the powder and two for the shot. The chargers and other apparatus for the powder are similar to those already described, and for the shot I place upon the other side of the lever shot-chargers 20^a, adjustable in capacity in the manner already described, the only material difference being that the lower ends of the charger-tubes are curved inward, and to carry the shot into the plunger-guides 6^a, by which it is carried to the shells. The upper cut-off, 23^a, for the shot-hopper 33^a is actuated by the slide-bar 26, which is connected with said cut-off by an arm, 53, Fig. 8. The lower cut-off, 30^a, is connected to the slide-plate 31 by an arm, 54, so that the cut-offs on both sides are operated by the striker 29.

It is necessary, of course, that wad-feeders for the shot-chargers shall be provided, and these are duplicates of those already described.

In the modification just described two shells are loaded simultaneously, first receiving the powder and wads, then the shot and the confining-wads. I may of course load any number within reasonable limits; but for sportsmen's use the size shown is preferable, though in a factory the machine may be very greatly enlarged.

The plungers 5 may be made adjustable in length by means of a threaded bolt, 55, connecting two sections of said plunger, as shown in Fig. 2. In this manner the plungers may be adapted to drive the wads on a load of shot of any weight and size, and may be adjusted to suit the adjustment of the powder-chargers, a scale being also added, if desired, to guide such adjustment.

It is evident that I may make the adjustment of the charging-block automatic, by either connecting it to the lever 4 by an intermediate device actuated by said lever, or by reciprocating the bolt 43 in some similar way; and this automatic action of said block is within the plain limitations of my invention and claims.

What I claim as my invention is—

1. The combination of a hopper, adjustable telescopic tube-sections forming chargers, a charging-block containing chambers for the shells, and a chamber in which said block is movable lengthwise beneath the chargers, substantially as described.

2. The combination, with two or more chargers, of a communicating hopper, a cut-off in the bottom of said hopper, a separate cut-off beneath the chargers, slide-plates connected with each cut-off and having curved end edges, and a lever reciprocating vertically and carrying a striker engaging with said edges and operating the cut-offs successively, substantially as described.

3. The combination, with the charging mechanism, of wad-holders located behind guides in which plungers reciprocate vertically, a forked plate entering said holders and taking out the wads, a vertical plate mounted on said forked plate and having a curved edge, a friction-roll carried by a bracket on the plunger-lever and engaging with said edge, and spring throwing said forked plate forward, substantially as described.

4. The combination, with vertical cylindrical wad-holders having feed-openings at the bottom, of driving-heads actuated by springs compressed in the wad-holders, a spring-actuated wad-feeding plate entering the bottom of the holder and pushing the wad out through the feed-opening, and a pivoted vertically-swinging lever having a yielding connection with the wad-feeding plate, substantially as described.

5. The combination, with the charging mechanism, of wad feeding and driving devices actuated by a vertically-reciprocating lever, a vertical plate mounted on the wad-feeder and having a curved edge with a shoulder above the curve, an arm carried by the lever and having a friction-roll engaging with the edge of the plate, and a spring normally throwing the feeding device forward, substantially as described.

6. The combination, with feeding and charging mechanism, of a charging-block containing chambers for the shells and having openings on one side at regular intervals, a chamber in which said block moves beneath the chargers, and a bolt moving in a slot in the wall of said chamber and carrying a dog engaging automatically with said openings, substantially as described.

7. The combination, with a vertically-reciprocating lever carrying two or more plungers, of a hopper, chargers communicating therewith, separate cut-offs closing the upper and lower ends of the charging-tubes, separate slide-plates actuating said cut-offs, a striker carried by the lever and engaging said slide-bars successively, and springs moving the cut-offs in one direction, substantially as described.

8. The combination, with a vertically-reciprocating lever, of plungers carried thereby, guides in which said plungers move, wad-

holders behind and communicating with said guides at their bottom, a forked wad-feeding plate thrown forward by a spring, an arm on the lever retracting said plate, charging devices having an independent upper and lower cut-off operated in one direction by springs, and slide-plates connected to said cut-offs and operated by an arm or striker on the lever, substantially as described.

9. The combination, with a lever carrying plungers on each side thereof, of powder-charging devices upon one side and shot-charging devices upon the other, each having an independent upper and lower cut-off, devices connecting the upper and lower cut-off on the shot-chargers respectively, and an arm on the lever engaging successively with slide-plates connected with the cut-offs upon one side of the lever, substantially as described.

10. The combination, with a lever-carrying plungers in guides, of wad-holders behind and communicating with said guides, a wad-feeding plate reciprocating beneath the ends of the holders, a spring on the bed-plate engaging with the feed, and an arm on the lever engaging with the curved edge of a vertical plate on the feed and giving the feed-plate reciprocation, automatic cut-offs at top and bottom of the chargers, an interchangeable hopper having a cut-off in its bottom, and a charging-block having chambers in a single series adapted to be fed beneath the chargers and plungers, substantially as described.

11. The combination, with the hopper-box, of the cut-off in its bottom, the adjustable telescoping sections entering its bottom, the chargers mounted on the bed-plate, a cut-off closing their lower ends, springs actuating said cut-offs in one direction, a striker carried by the lever actuating the wad-drivers, and a cam-surface on a device connected with each cut-off, said cams being arranged one below the other, whereby they are successively operated by the lever and the separate actuating-springs, substantially as described.

12. The combination, with the hopper-box and the adjustable telescoping tube-sections, of the chargers communicating therewith, an interchangeable hopper fitting within the hopper-box, a cut-off in the bottom of said hopper, and means for locking said cut-off in either position, substantially as described.

13. The combination, with the wad-driving plungers, of guides supporting the same, wad-holders behind and communicating with said guides, a feed-plate taking the wads from the holders into the guides, a charging-block having shells arranged in a single series, powder-charging mechanism located on one side of the plungers, a bolt having a spring-actuated dog engaging with openings in the charging-block, and a slot in the wall of the chamber limiting each movement of the bolt, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD A. FRANKLIN.

Witnesses:

JAMES L. NORRIS,

JOS. L. COOMBS.