(No Model.) 3 Sheets—Sheet 1.

S. S. SAFFOLD.

CARTRIDGE LOADING DEVICE.

No. 561,439. Patented June 2, 1896.

Fig. 1.

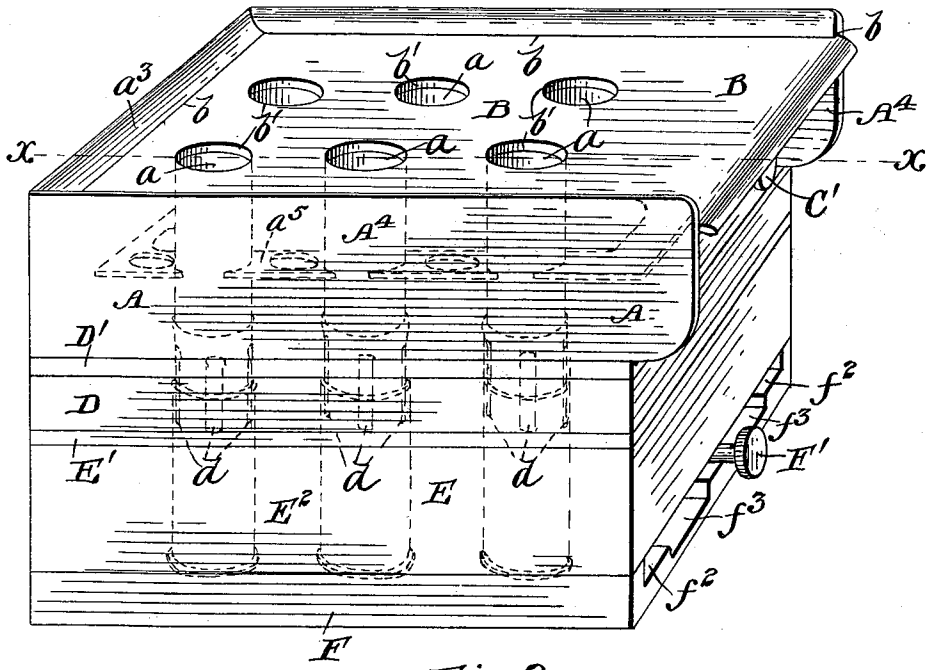
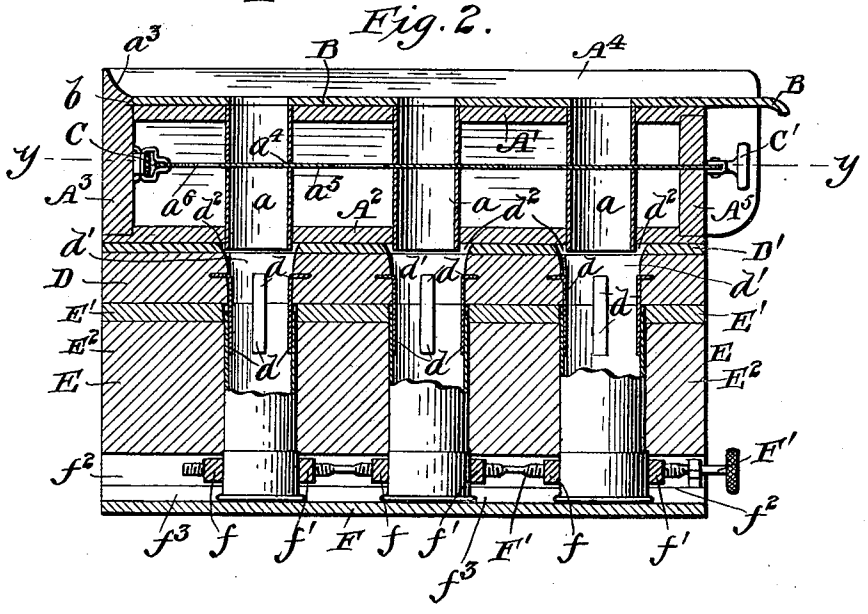


Fig. 2.



WITNESSES

Geverance.
C. N. Hamilton

INVENTOR

Starke S. Saffold
by: F. J. F. Johnson
atty.

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D.C.

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Fig. 3.

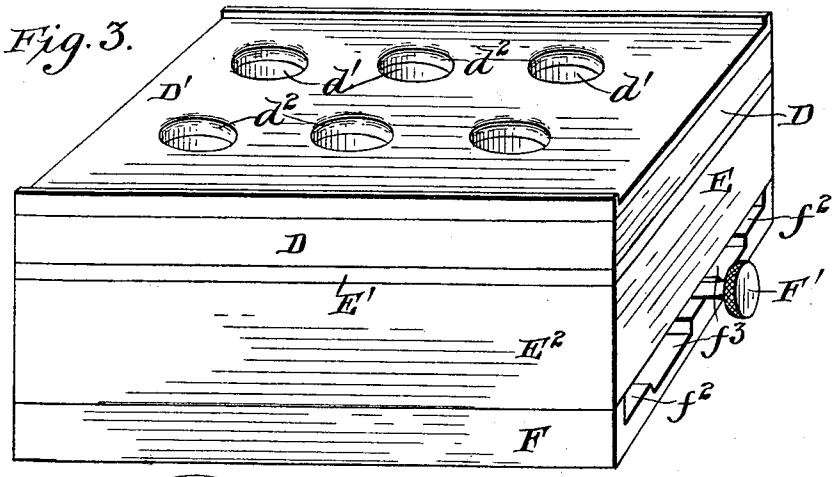


Fig. 4.

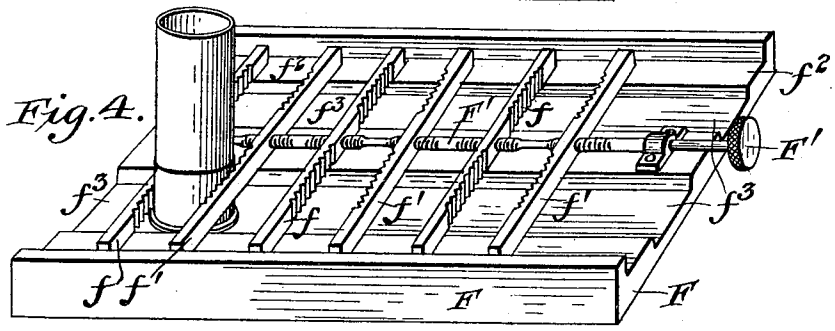
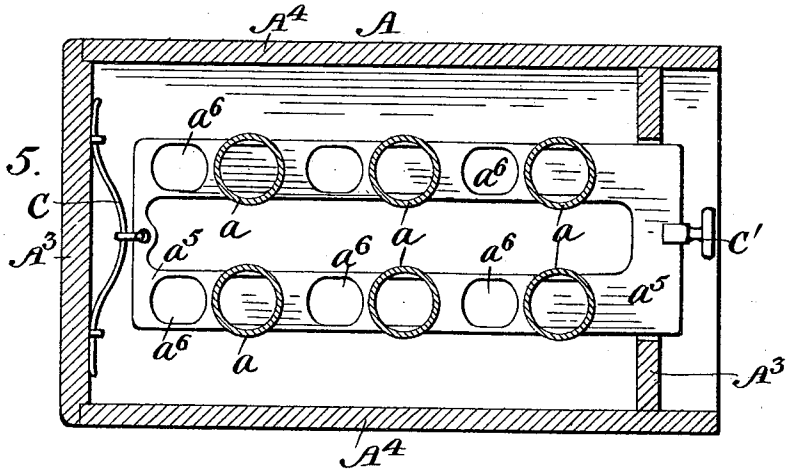


Fig. 5.



WITNESSES

Geverance.
C. H. Hamilton

INVENTOR

Starke S. Saffold
by F. T. Johnson
Atty.

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D.C.

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S. S. SAFFOLD.

CARTRIDGE LOADING DEVICE.

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Fig. 6.

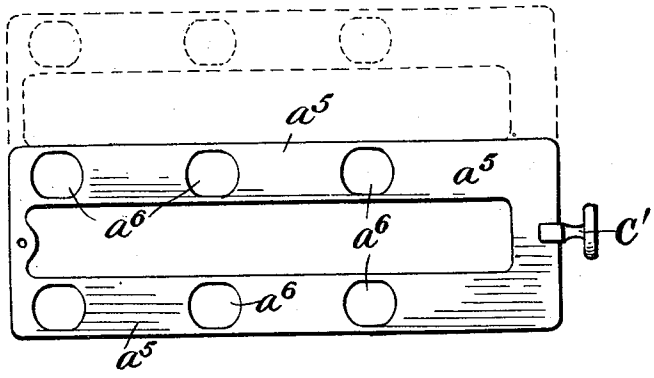


Fig. 7.

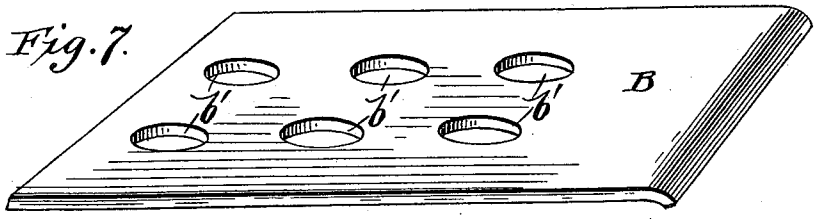


Fig. 8.

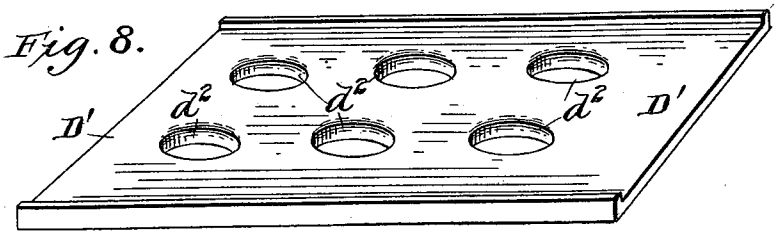


Fig. 9.

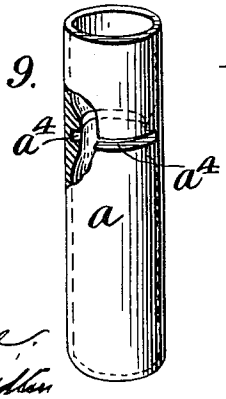
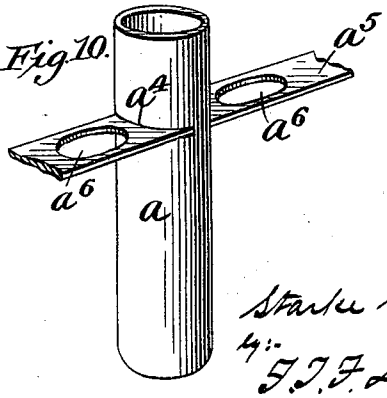


Fig. 10.



WITNESSES

C. Sevearance.
C. N. Hamilton

INVENTOR

Starke S. Saffold
by F. F. Johnson
atty.

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D.C.

UNITED STATES PATENT OFFICE.

STARKE S. SAFFOLD, OF CLEVELAND, OHIO.

CARTRIDGE-LOADING DEVICE.

SPECIFICATION forming part of Letters Patent No. 561,439, dated June 2, 1896.

Application filed March 27, 1895. Serial No. 543,392. (No model.)

To all whom it may concern:

Be it known that I, STARKE S. SAFFOLD, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Cartridge-Loading Devices; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in cartridge-loading devices for loading shells, and has for its particular object the provision of a simple, convenient, and reliable device for loading and reloading paper and metallic shells.

The objects of the invention are, first, the production of a device by means of which any number of shells may be loaded at once and with exactly the same quantity of both powder and shot and in which the quantity of powder or shot or both powder and shot can be increased or diminished uniformly; second, a device in which the paper shell will be protected when the wad is driven home on either the powder or the shot; third, a wad-receiver for each shell which can be regulated to hold exactly the required number of wads, and, fourth, a device for holding and clamping the shells and preventing them turning during the crimping operation.

The invention further consists in the construction and novel arrangement of the several parts of the device hereinafter described, illustrated in the drawings, and more particularly pointed out in the claims hereunto appended.

In the drawings, Figure 1 is a perspective view of the device, showing one row of cartridges and the channels leading thereto in dotted lines, the cut-offs in said channels, and the removable apron above said channels. Fig. 2 is a vertical longitudinal section of the device, taken on line $x\,x$, Fig. 1. Fig. 3 is a perspective view of the lower part of the device, the upper or measuring portion thereof being removed, showing the wad-receiver, shell-protector holding-plate, the shell plate or holder, and the plate or holder in which is set the shell-clamping device. Fig. 4 is a perspective view of the clamp-holding plate and clamps therein, showing a shell in clamped position. Fig. 5 is a horizontal sectional view of the measuring part or portion of the device, taken on line $y\,y$, Fig. 2. Fig. 6 is a plan view of the cut-off plate or slide and means for returning it to its normal position. Fig. 7 is a perspective view of the sliding apron for the powder and shot measuring device. Fig. 8 is a perspective view of the wad-receiver, and Figs. 9 and 10 are detail views of the channels or tubes in the measuring part or portion of the device.

Like letters indicate like parts in all the figures.

Referring to the drawings by letters, A represents the upper or measuring portion of the device and consists of two parallel plates A′ and A^2, into which are set at predetermined distances apart the tubes or channels $a\,a\,a\,a$, as shown. The plates A′ and A^2 are supported and held in their proper positions by the sides $A^4\,A^4$ and the ends A^3 and A^5, as is apparent. The end A^3 and the sides $A^4\,A^4$ extend a short distance above the plate A′ and have provided therein flush with the said plate A′ the grooves or channels b to receive and hold the edges of a sliding apron B. The upper extended portion of the end A^3 is slightly concaved, as shown at a^3, for a purpose hereinafter stated. This apron B is provided with a number of circular holes or openings b' of the same diameter as the tubes or channels $a\,a$ and register with the said tubes or channels when the apron is in its proper position on the plate A′. In this device there are a number of sliding aprons B, each of a different but predetermined thickness and of the same construction, so that they may be interchangeable one with the other. The use for the different thicknesses of the apron will be hereinafter stated.

The tubes or channels $a\,a\,a\,a$ are so set in the plates that the upper ends thereof will be flush with the upper surface of the plate A′ and the lower ends thereof will project slightly below the under surface of the plate A^2 for a purpose hereinafter set forth. These tubes or channels $a\,a\,a\,a$ have near the centers thereof their sides thickened or bulged

toward the interior of the tube, and a horizontal slot or opening a^4 passed through said tubes or channels at said thickened portion for the reception of a cut-off or slide plate a^5, having openings a^6 therein, which openings are of exactly the same diameter as the interior diameter of the tubes or channels at the point through which the said cut-off passes, as is evident. These slots a^4 pass through the said tubes or channels in the same horizontal plane.

a^5 is a slide or cut-off of proper width, which slides in the horizontal slots a^4 in the tubes or channels $a\ a\ a\ a$ and is provided with a number of openings a^6, the distance between which is equal to the distance between the tubes or channels through which it passes, and the said openings a^6 are of a diameter equal to the interior diameter of the tubes of channels $a\ a\ a$ at the point of the said tubes or channels through which the said slide passes, and which openings can be made to register with the interior of the tubes or channels.

C is a suitable spring attached to one end of the slide a^5 for returning it to and holding it in its normal position. C′ is a handle or knob secured to the opposite end and is for the purpose of operating the said slide or cut-off a^5 to effect the purpose of the device. It is to be noted that each one of these slides or cut-offs has as many holes or openings as there are tubes or channels in a row, and that there are as many slides or cut-offs a^5 as there are rows of tubes or channels $a\ a\ a$, and that when two or more of these slides or cut-offs are in use they are joined together in any suitable manner, so that their operation may be simultaneous. It is evident that two or more slides or cut-offs may be stamped or otherwise made from one sheet of metal and that they may be made integral with each other instead of being made separate and then joined.

The parts D, E, and F are three plates of the proper size and thickness set one upon the other, as shown, and are for the following purposes:

D represents the shell-protector holding-plate and has a number of circular holes or openings $d'\ d'$ therein. These openings are provided at or near their lower portions with downwardly-extending strips or projections $d\ d\ d\ d$ for the purpose of protecting the mouths or upper ends of the shells when the wad is placed therein and rammed home. These protectors $d\ d\ d$ project a short distance into the mouth of the shell during the loading operation, as shown in Fig. 2.

D′ is a removable wad-receiver or apron removably secured upon the upper face of plate D and is provided with a number of conical holes or openings d^2, that register with the holes or openings in the plate D, as shown. This removable receiver or apron is of different thicknesses, and is for the purpose of measuring a greater or less number of wads to go into a shell. This receiver or apron may be secured upon the upper surface of the plate D in any suitable manner.

E represents a shell-holding plate consisting of two parts E′ and E². These two parts are removably secured one to the other. This plate E is provided with the same number of openings as there are tubes or channels $a\ a\ a\ a$ in the measuring portion of the device, and are of sufficient size to receive and hold a shell, permitting an easy movement thereof.

F represents the plate that contains the shell-clamping device and is recessed at f^2 to afford bearings for the sets of clamps therein and at $f^3\ f^3$ for the purpose of providing seats for the shells. The clamping-pieces f and f' are run upon a rod F′, provided with alternate screw-threaded portions oppositely screw-threaded, the clamping-pieces f' being set upon a right-handed screw-thread and the clamping-pieces f upon a left-handed screw-thread, so that they will be drawn together and clamp the shells setting between them by the turning of the screw-rod F′ in one direction, and the two parts of the same sets separated when the said rod F′ is turned in the opposite direction. This clamp may contain any number of sets of clamping-pieces as may be desired; but they will all, however, be manipulated simultaneously by means of one or more screw-rods F′.

The device is operated as follows: The shells are first placed in the shell-holding plate E, which plate E is then placed over and upon the plate F. The bottoms of the shells in the plate E will then rest in the channels $f^3\ f^3$ and between proper sets of clamping-pieces f and f' in the plate F. The two plates are then fastened together in any suitable manner. The plate D is then placed over and upon the plate E, so that the projections $d\ d\ d\ d$ will extend a short distance into the mouth of the shells beneath. The part A is then set over and upon the part or plate D, so that the lower ends of the tubes or channels $a\ a\ a\ a$ will enter the openings $d'\ d'$ in the plate D, or in the event that the wad-receiver is on the upper surface of the plate D then into the conical holes or openings d^2 of the receiver or movably secured upon D′, as is apparent. A sliding apron of the proper thickness is slid into its proper position over the plate A′. The shells are then ready to be charged. Powder is first poured upon the apron B and enters the tubes or channels $a\ a\ a\ a$ as far as the cut-offs a^5. A scoop or striker is then placed on the concaved portion of the end A³ and drawn down over the apron, striking a level in the holes and removing the surplus powder from the apron. The handle C′ of the cut-off or slide is then pulled, whereupon the tubes or channels $a\ a\ a\ a$ will be opened and the powder will fall into the shells beneath. The part A is then removed and wads are placed upon the wad-receiver and a level is struck, running the wads in the conical openings d^2, which are rammed down upon the powder in any suitable manner, the projections $d\ d\ d\ d$

preventing the wad striking the sides of the mouth of the shells. The part A is then replaced and the same operation is gone through with the shot. The part A and the parts D and E′ are then removed, leaving the ends of the shells protruding. The clamp screw-rod F′ is turned and the shells clamped and held rigid, when the shells are crimped in the usual manner.

The different thicknesses of the apron B are for the purpose of increasing or diminishing the length of the measuring tubes or channels *a a a a*, and thereby enlarging or reducing the quantity of powder or shot placed in the shells. The different thicknesses of the wad-receiver D′ are for the purpose of increasing or diminishing the size of the wad that is to be placed in the shell. This changing of the size of the wad or of powder or shot is accomplished by removing a thin apron or receiver and replacing it by a thicker one or a thinner one, as may be desired.

If desired, the receiver and apron may be omitted; but I prefer to use them in connection with this device, as they are very simple devices for varying the size of the charges and the wads.

Having described my invention, what I claim is—

1. In a cartridge-loading device a number of tubes or channels *a*, *a*, having a portion of their walls thickened, slots a^4, a^4, in said tubes at the thick portions, and a cut-off a^5 having openings therein at proper intervals; in combination with a removable sliding apron provided with suitable openings adapted to slide over the top of said tubes, and the said openings registering with the said tubes, as and for the purpose set forth.

2. In a cartridge-loading device a plate adapted to hold a number of shells, a clamp for holding said shells rigid in said plate consisting of a number of sets of clamps set upon a screw-rod provided with right and left hand screw-threads; in combination with a shell-protecting plate D having suitable protectors projecting down into the mouths of the shells as set forth.

3. In a cartridge-loading device a number of tubes or channels *a*, *a*, having a portion of their walls thickened, and a slot a^4 in said tubes at the thick portion, and a cut-off a^5 having openings therein at proper intervals and adapted to be operated to simultaneously measure a number of charges at the same time, in combination with a shell-holding plate, clamp for holding the shells rigid therein, and suitable protectors projecting into the mouths of the shells, as and for the purpose set forth.

4. In a cartridge-loading device a number of sets of clamps set upon a screw-rod provided with right and left hand screw-threads, whereby the clamping-pieces of each set of clamps are made to approach, or separate from, one another, as set forth.

5. In a cartridge-loading device the combination of a shell-holding plate, with a shell-protecting plate D, protectors *d*, *d*, *d*, secured therein and projecting into the mouths of the shells, and a wad-receiver D′, as set forth.

6. In a cartridge-loading device the tubes or channels *a*, *a*, *a*, having a portion of their walls thickened, and slots a^4, a^4, passing through said tubes at their thickened portions, in combination with a cut-off a^5 having openings therein at proper intervals, and a spring attached at one end of said cut-off to return it to its normal position, as set forth.

7. In a cartridge-loading device of the character described the combination of a shell-holding plate E, with a shell-protecting plate D, and a wad-receiver D′, as set forth.

8. In a cartridge-loading device of the character described the combination of the shell-protecting plate D, with the wad-receiver D′ removably secured thereto, as set forth.

9. In a cartridge-loading device of the character described tubes or channels *a*, *a*, *a*, *a*, having a portion of their walls thickened, and a horizontal slot a^4 passed through said tubes at the thickened portion, in combination with a cut-off a^5 having openings therein at proper intervals, as set forth.

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

STARKE S. SAFFOLD.

Witnesses:

R. W. JUDD,

J. E. BROOKES.