

No. 636,196.

Patented Oct. 31, 1899.

A. BURGESS.  
AUTOMATIC GUN.

(Application filed Feb. 25, 1896.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1

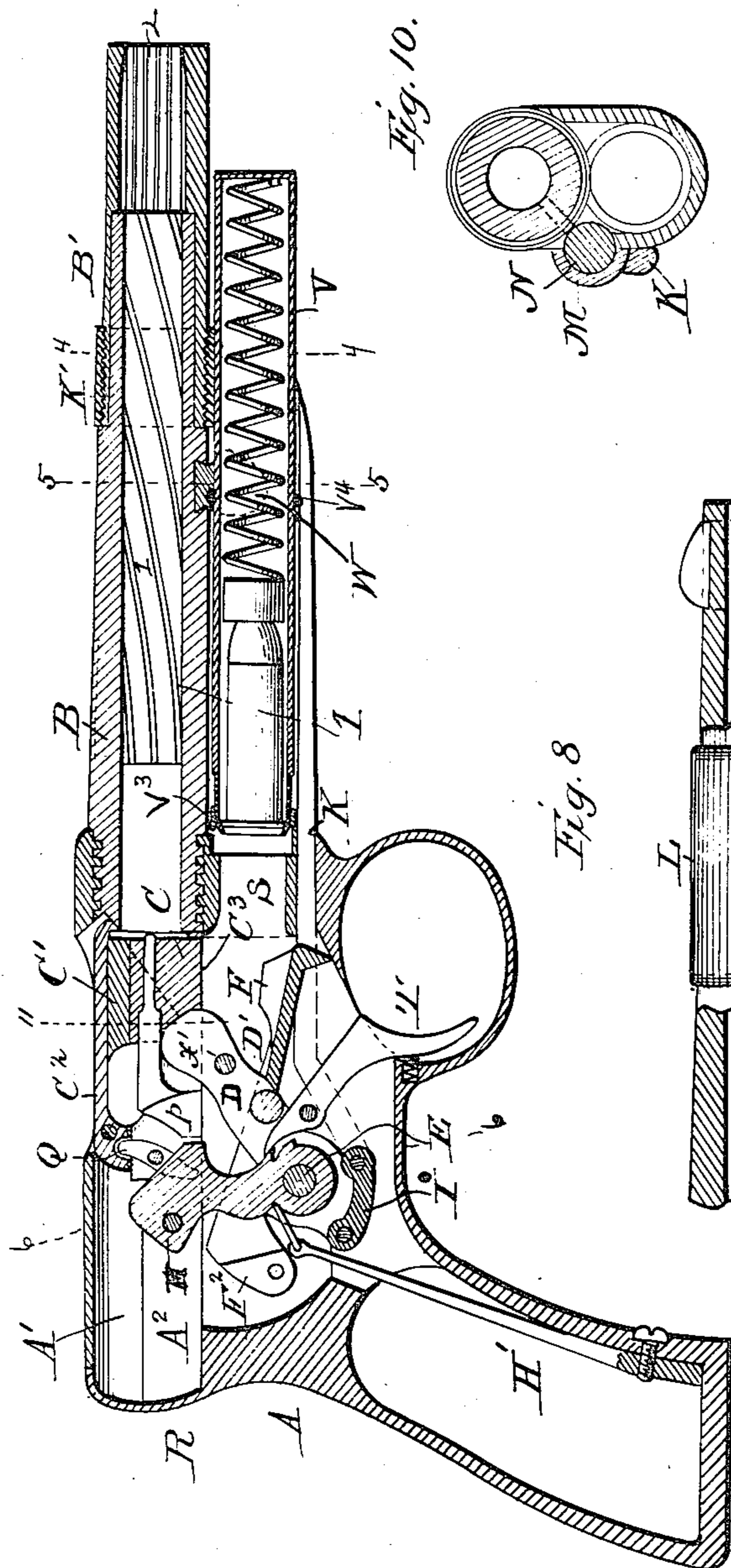


Fig. 10.

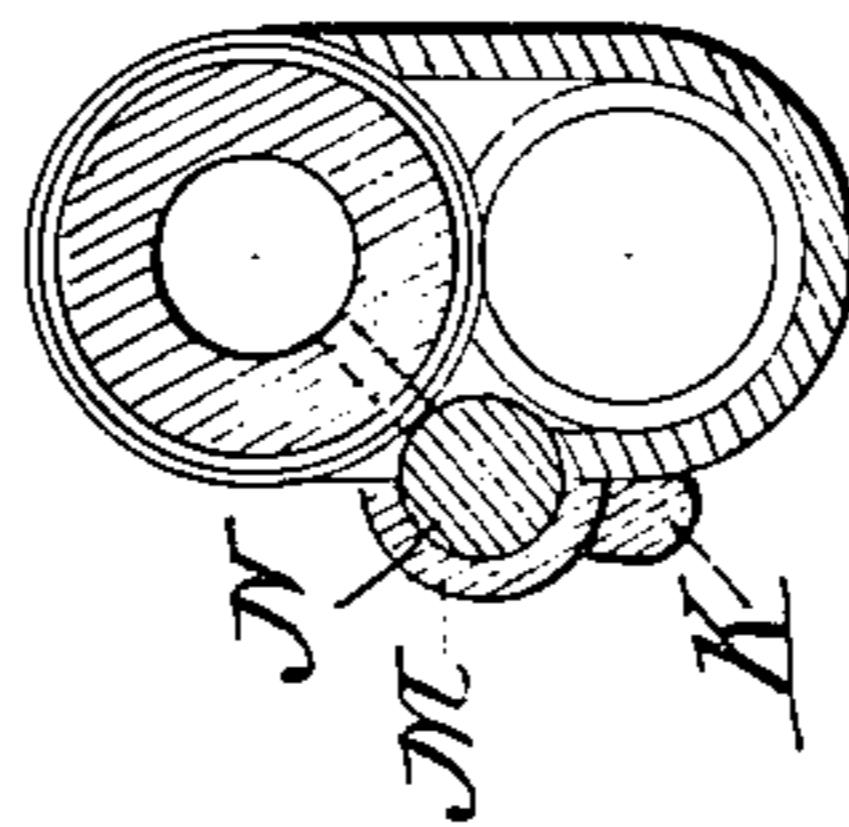


Fig. 7.

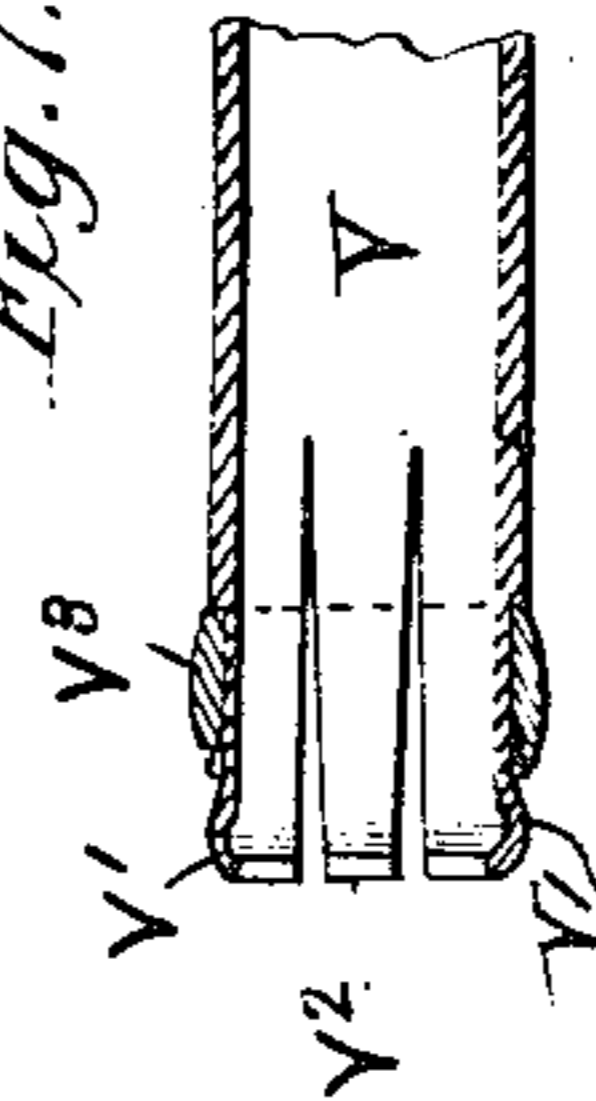
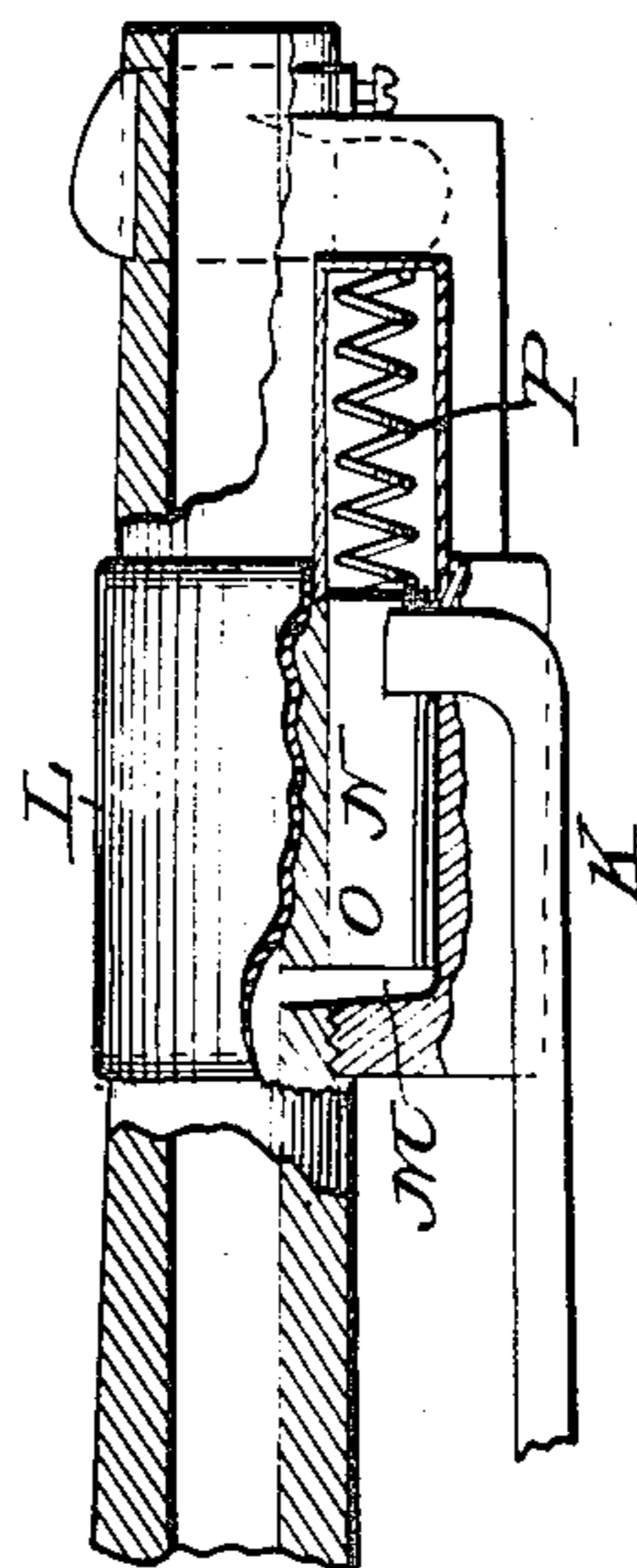


Fig. 8



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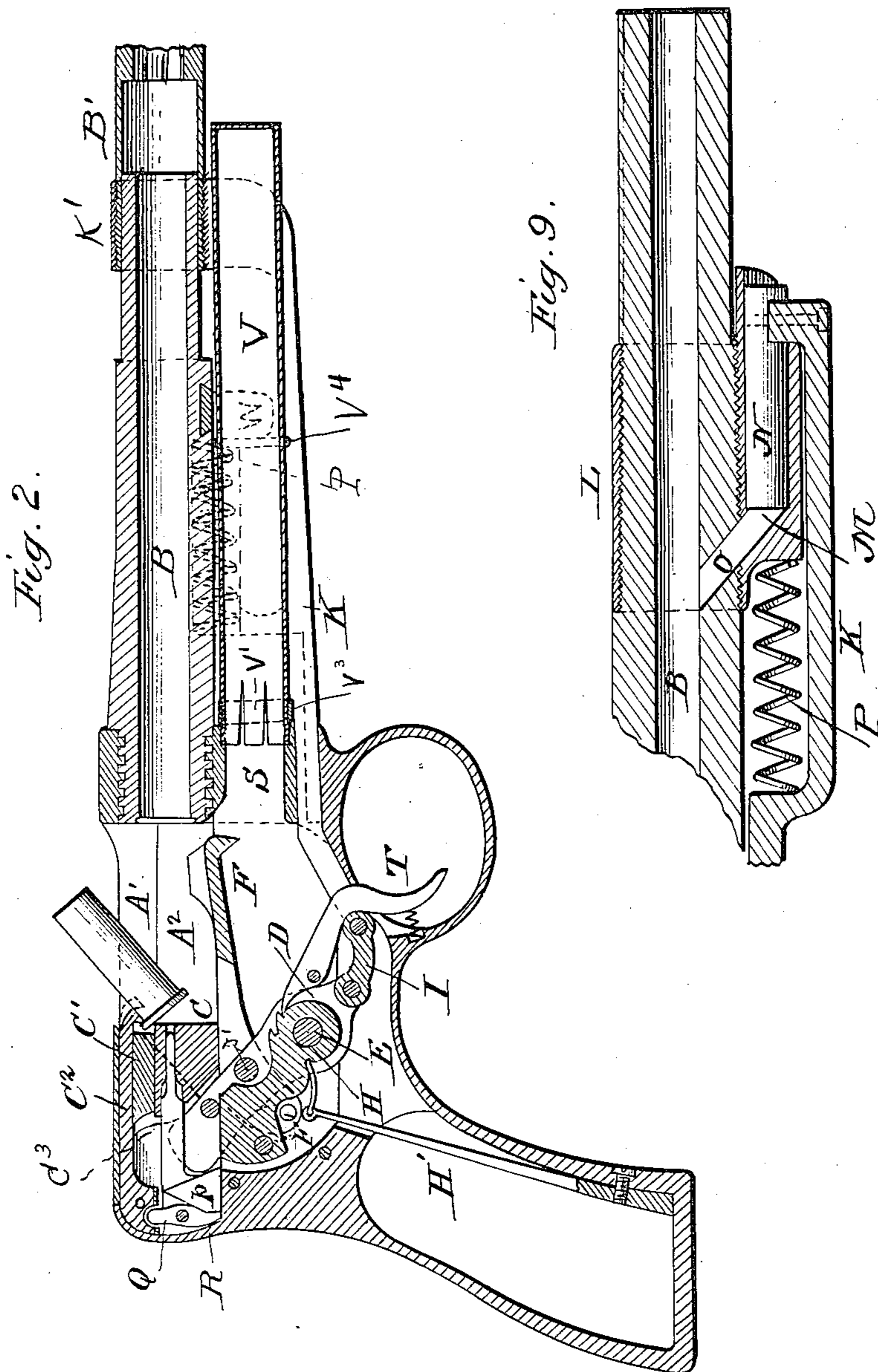
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3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

Fig. 3

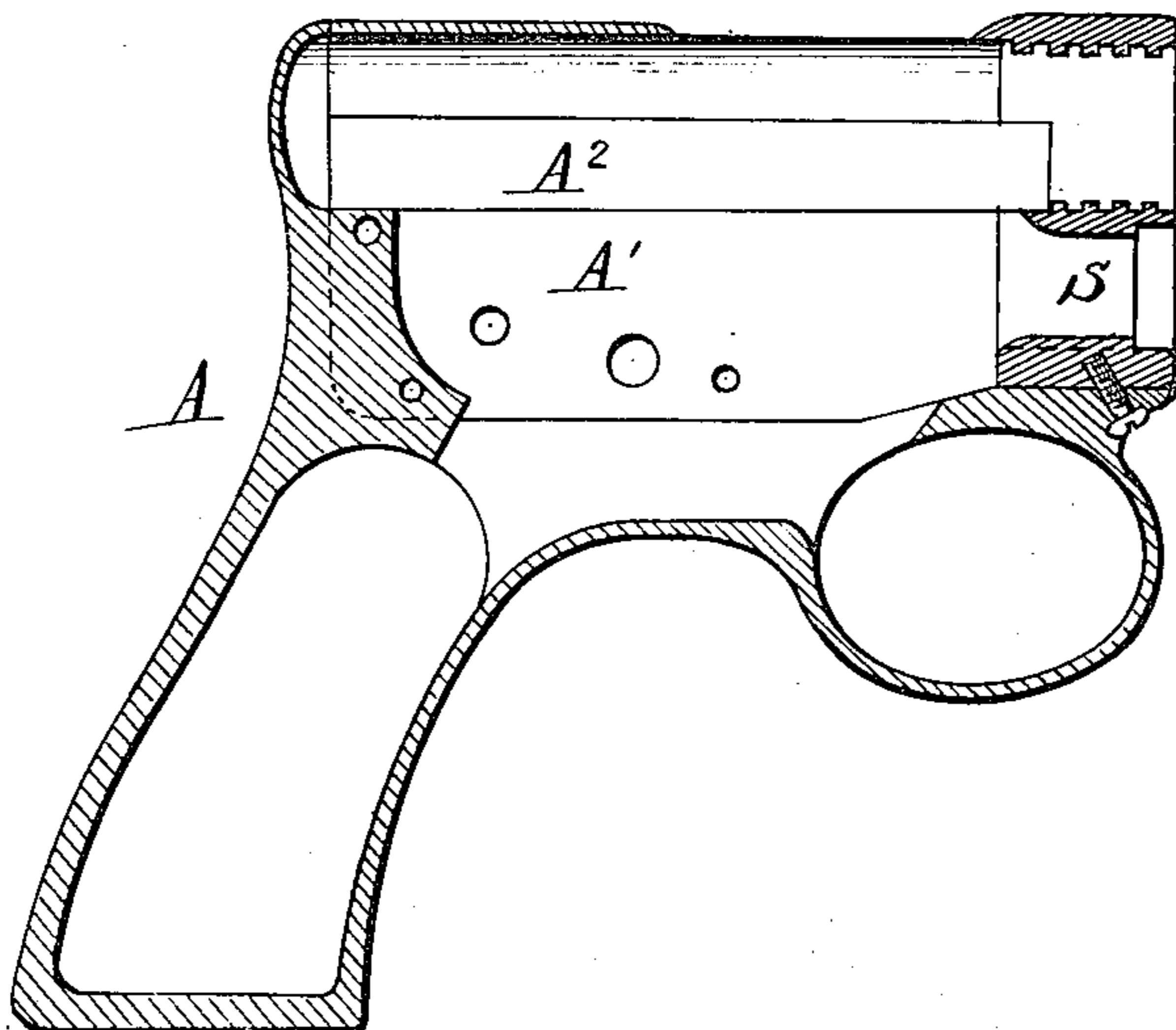


Fig. 6.

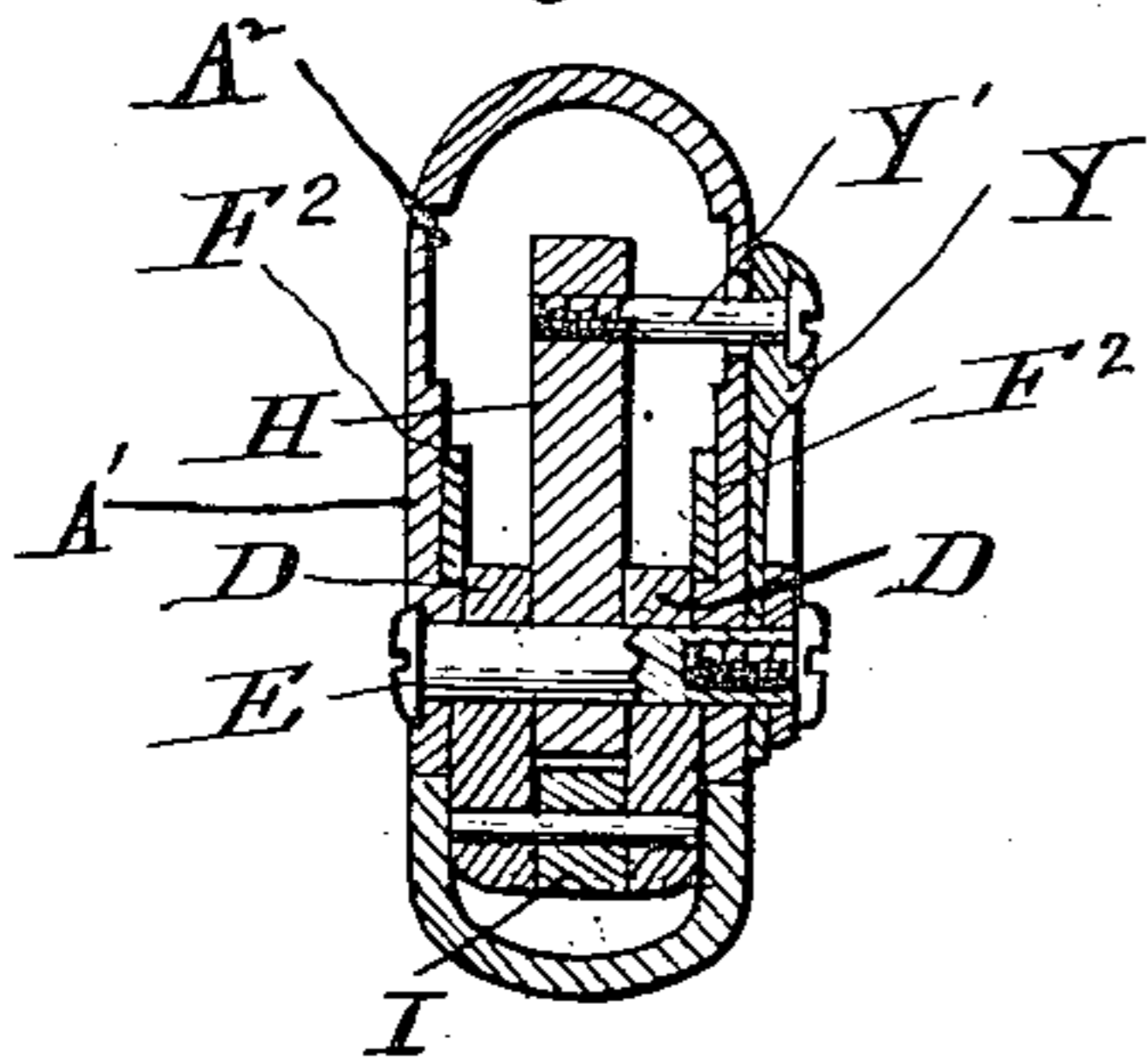


Fig. 5.

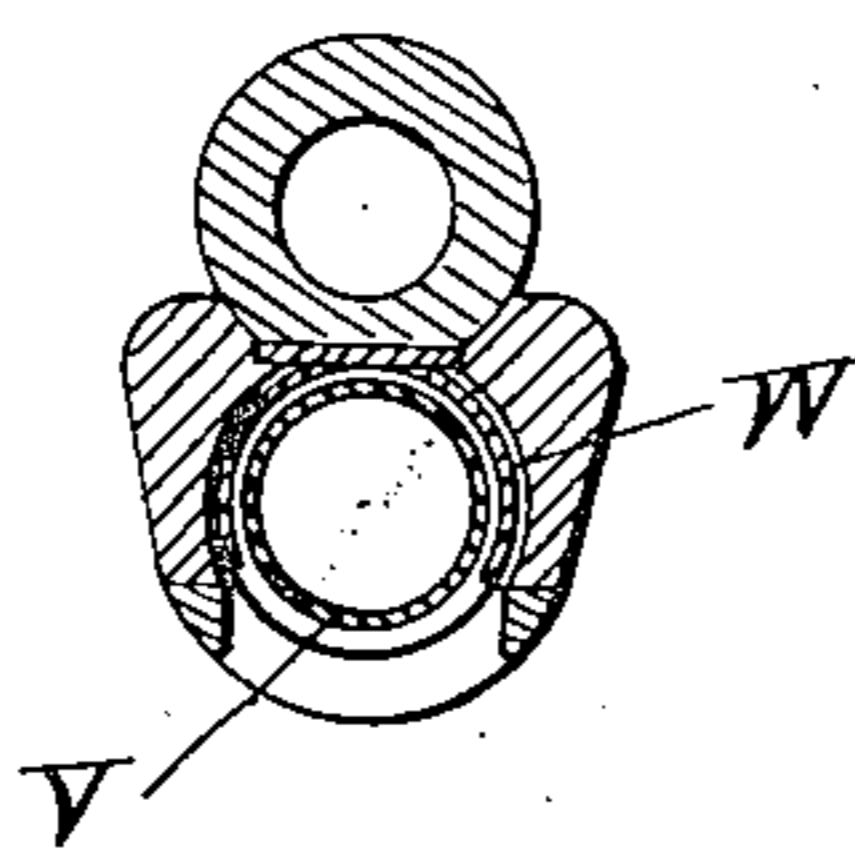


Fig. 4.

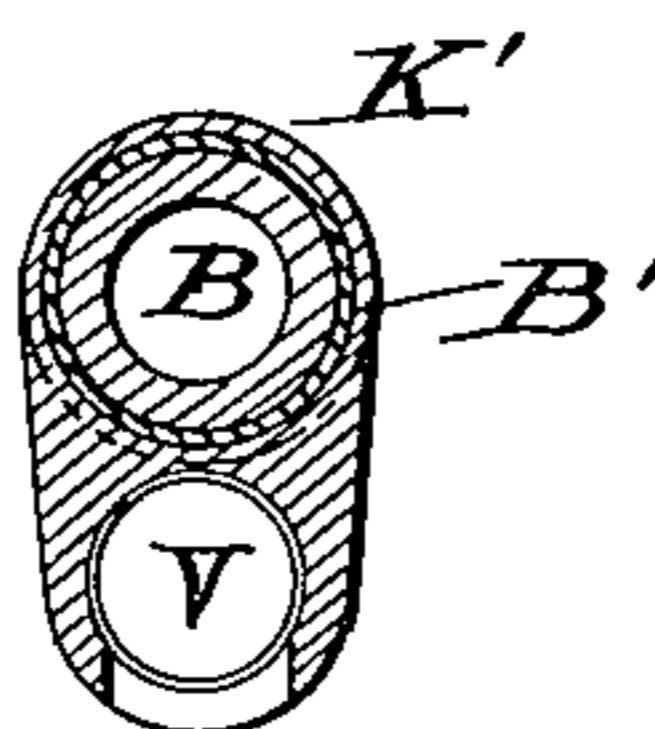


Fig. 11.

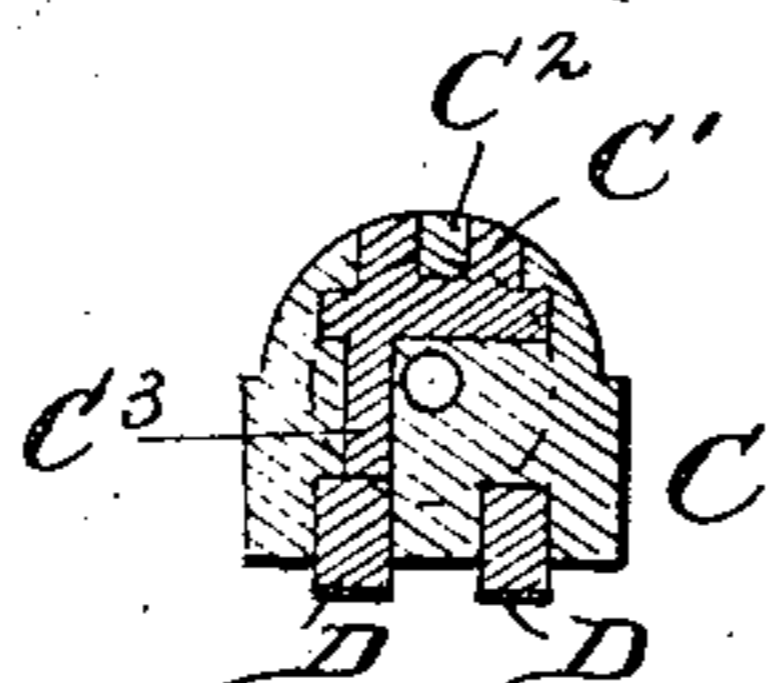
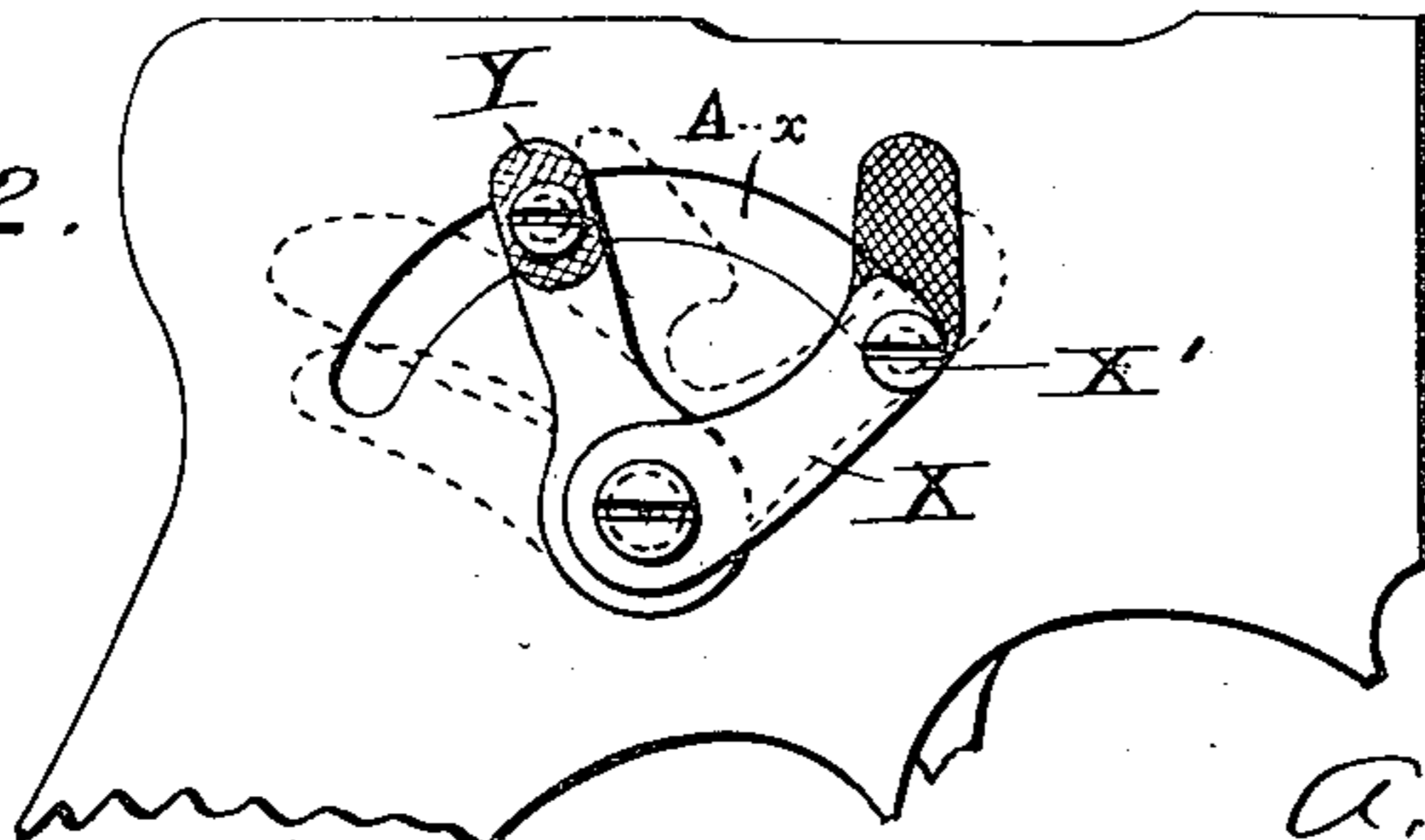


Fig. 12.



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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC GUN.

SPECIFICATION forming part of Letters Patent No. 636,196, dated October 31, 1899.

Application filed February 25, 1896. Serial No. 580,719. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW BURGESS, re-  
siding at Buffalo, in the county of Erie and  
State of New York, have invented certain new  
5 and useful Improvements in Automatic Guns,  
of which the following is a specification, ref-  
erence being had therein to the accompany-  
ing drawings.

This invention relates to automatic guns.

10 The object of the invention is to produce an  
automatic gun in which the breech mechan-  
ism shall be operated by pressure developed  
in the bore of the gun on firing; also, to im-  
prove the construction by which the breech  
15 may be opened and the hammer raised by  
hand as well as automatically; also, to im-  
prove the mechanism by which the cartridge-  
shell is ejected from the gun; also, to improve  
the magazine and means for attaching the  
20 same and for improving various details and  
combinations of parts.

Figure 1 is a vertical central longitudinal  
section of a gun on a pistol-stock, showing  
most of the parts in section, but some parts  
25 in elevation, the breech being closed and ham-  
mer down. Fig. 2 is a similar section of the  
gun with the breech open. Fig. 3 is a ver-  
tical longitudinal section of the frame or  
mounting with operative parts removed. Fig.  
30 4 is a section on line 4 4, Fig. 1. Fig. 5 is a  
section on line 5 5, Fig. 1. Fig. 6 is a section  
on line 6 6, Fig. 1. Fig. 7 is a longitudinal  
section of rear end of magazine. Figs. 8 and  
9 are respectively a broken side elevation  
35 and a broken longitudinal section, and Fig.  
10 a cross-section, of a modification wherein a  
different mechanical construction is employed  
for the application of the gas-pressure to ac-  
tuate the breech mechanism. Fig. 11 is a  
40 cross-section of the bolt, firing-pin, and end  
of locking-lever on line 11. Fig. 12 is a broken  
side elevation of frame and hand or thumb  
levers hereinafter described.

The frame A is of suitable strength and any  
45 usual construction, the barrel B being held  
to the frame by screw-threads, and the side  
plates A' being preferably separate and at-  
tached by screws or in other suitable manner.  
These plates A' have a guide-groove A<sup>2</sup>, in  
50 which the bolt C moves longitudinally to close  
or open the gun-breech.

The breech-bolt is shown in two sections,  
the upper section C' having a slight longitu-  
dinal movement relatively to the lower part  
C of the bolt, for a purpose to be explained. 55  
The bolt will be first described as if it were  
integral, as may be the case in some of the  
combinations I claim. The bolt is guided in  
the ways A<sup>2</sup> in a manner well understood.  
The operating-lever D is pivoted in the frame 60  
on a transverse screw or pin E, and in its for-  
ward position bears against an abutment in  
the lower part of the bolt and locks the bolt  
in closed position, and when the upper end of  
said lever D is swung backward it unlocks the 65  
bolt, cams back the firing-pin, and then moves  
the bolt and its attachment back in a well-  
known way. The backward movement of the  
lever also operates the carrier F to raise a  
cartridge, said carrier being pivoted in the 70  
frame, as is common.

The lever D is preferably composed of two  
bars, which are joined by the stud D'. The  
hammer H is hung on the pivot E between  
the side bars of the operating-lever and is 75  
pressed forward by a mainspring H' of any  
suitable or usual construction.

The carrier F is preferably extended to the  
rear beyond its pivot F', and the side bars,  
one or both, have abutments F<sup>2</sup>, against which 80  
the operating-lever bears to lift the cartridge  
when the operating-lever has been swung  
nearly to its extreme rearward position.

The operating-lever is generally swung to  
open and close the breech by means of con- 85  
nections extending from the lever below its  
pivot toward the front of the gun and oper-  
ated by pressure in the bore, as will now be  
described.

I indicates a link, which is connected by a 90  
pivot or other suitable connection to the op-  
erating-lever D below the fulcrum of said  
lever, being shown as connected by a pin to  
the side bars of said lever. This link I is  
pivoted to the draw-rod K, which extends to 95  
a movable piece forward on the barrel. It  
will be apparent to a person skilled in this  
art that the reciprocation of this rod K will  
swing the operating-lever and so open or close  
the breech, cock the hammer, and raise the 100  
carrier, whether said rod K be reciprocated  
by hand or by some other power.

In Figs. 1 and 2 a telescopic piece or tube B' is shown surrounding the front part of the gun-barrel and forming a movable muzzle-section. The rod K is firmly attached to this muzzle-section by a ring K', which surrounds said muzzle-section, and the rod is pressed back by a spring P.

The passage of the gas through the barrel when the gun is fired tends to throw the tubular section B' violently forward. Especially is this the case if the front of the tube B' is somewhat brought in or "choke-bored."

The barrel of the gun may be rifled with twist-grooves, as at 1, and the muzzle-section in front of the rifling may be of enlarged diameter and provided with straight or longitudinal grooves, as indicated at 2, Fig. 1. Preferably the muzzle or extreme front will be drawn in or "choked." The object of the longitudinal grooves is to give a final direction to shot should shot be fired from a rifle-barrel, as may sometimes be done. The tendency of a spiral rifling in a gun is to cause shot to fly wild or scatter, and this is overcome to some extent by longitudinal grooves extending back a little way from the extreme front or muzzle of the gun.

With some kinds of ammunition the tendency to shoot forward the telescopic muzzle of the gun may not be great enough to operate the breech mechanism by the connections I have described. In such case another form of mechanism may be applied to the barrel, as indicated in Figs. 8, 9, and 10. In such case the barrel B has a sleeve L applied forward of the cartridge-chamber. This sleeve L has a chamber M, which is similar to the operating-cylinder of an engine. The gas from the bore of the gun enters the cylinder or chamber through an opening O, communicating with the bore of the barrel. A piston N, which works gas-tight in this cylinder, is connected to the draw-rod K. The gas pressing from the bore of the gun through opening O moves the piston N forward, and so by means of the draw-rod K opens the breech of the gun.

The breech of the gun is closed by a reverse movement of the rod K, which is effected by a strong spring P, located in any suitable position to bear against a fixed part of the gun and against the draw-rod. As the draw-rod may extend forward to almost any convenient position, the location of this spring P may be such as is found convenient.

I will now describe the mechanism by which the sectional breech-bolt is made to eject the cartridge-shell.

The body of the bolt C is guided in the frame, as usual. The upper part C' of the bolt is made separate therefrom and has ribs or a dovetail which enters longitudinal grooves in the top of the bolt, as clearly shown in section, Fig. 11. The spring-hook extractor C<sup>2</sup> is attached to the top section of the bolt in a manner common for securing extractors to breech-bolts. The section C' of the bolt

has a wing C<sup>3</sup>, Fig. 11, extending down in a slot in the body of the bolt C, and this wing has an inclined face, which being engaged by the front of the operating-lever D when the bolt is closed forces the bolt-section C' forward, so that its face is flush with the front of the bolt proper. The section C of the bolt is slotted longitudinally for the reception of the firing-pin p, as usual. At the rear of the bolt-section C, in a suitable recess, there is pivoted a short lever Q, which lever swings so that in certain positions its lower end extends back of the end of the bolt-section C, and its upper end always extends into a notch in the bolt-section C'. When the bolt is closed and locked, the locking-brace D holds the upper bolt-section forward; but when the bolt is moved back the lower end of the lever Q is brought suddenly against the abutment R in the frame, thus rocking the lever Q on its pivot and moving the upper bolt-section C' backward relatively to the bolt-section C, there being sufficient space back of the bolt-section C' to permit this movement. This backward movement of the upper bolt-section and extractor at the instant the lower bolt-section is stopped serves to flip the cartridge from the gun.

The trigger T engages the hammer in usual manner, and the trigger may be held to its work by any usual trigger-spring.

The filler-piece S at the front of the frame has a cylindrical opening, into which the rear end of the magazine-tube enters. Any usual detent may be employed to feed the cartridges back into the carrier at the proper time, the same forming no part of the present invention.

The magazine-tube V is of thin metal, with its rear end split to form fingers V<sup>2</sup>, the ends of these fingers being normally bent slightly outward and then inward, forming grooves or recesses across the inner faces of these fingers. A ring V<sup>3</sup> slides over the magazine-tube near its end and when slid back clamps the fingers in onto the flange of a cartridge, should a cartridge be placed in proper position in the tube. The magazine-tube will be provided with the usual spring-follower.

When the magazine is entered from the front into the hole in filler S, the ring V<sup>3</sup>, which is too large to enter the hole, is pushed forward on the tube, allowing the spring-fingers to expand outward and release the cartridge, which is then passed back to the follower.

The magazine-tube is held at its front end by spring-clasps W, which partly surround the tube in a manner well known. The tube has a bead or projection V<sup>4</sup>, which rests against the edge of the clasp W when the magazine is in place, thus preventing forward movement of the magazine.

The gun will be loaded and fired automatically and continuously as long as there are cartridges in the magazine if the trigger is pulled after the first shot. To load the first

cartridge, the breech mechanism can be operated by hand by means of a lever X, hung loosely on the pin or pivot E and having a pin or screw X' passing through the curved slot A<sup>x</sup> in the frame and entering the operating-lever. The lever X is provided with a suitable thumb-piece by which it may be turned back, carrying with it the operating-lever, and thus opening the breech against the spring-pressure on the draw-rod.

Should it be desirable to cock or half-cock the hammer without opening the breech, this can be done by means of the lever Y or the entire breech mechanism by means of the lever X, the lever X in such case pressing back the lever Y through the intermediate parts.

It will be understood that many of the claims are not limited to precise constructions. I have in some instances described modifications or equivalents; but as it would be impossible within reasonable limits to describe all modifications and equivalents I state here that my invention is believed to be as broad as the claims herein made.

What I claim is—

1. In a gun the breech-bolt composed of sections, one section having a movement relatively to the other and carrying the extractor, and means for throwing back the section carrying the extractor after the completion of the opening movement of the main bolt to eject the shell, in combination substantially as described.

2. In a gun, the breech-bolt composed of sections, one section having a greater longitudinal movement than the other, a lever pivotally connected to the bolt and engaging both sections, and an abutment in the frame against which said lever impinges to give an excess of movement to one section of the bolt, for ejecting the shell, all combined substantially as described.

3. In a gun, the bolt composed of sections one of said sections having an excess of lon-

gitudinal movement relatively to the other, each section having a locking-shoulder, and a locking-brace engaging the shoulders of both bolt-sections, to lock them both forward in closed position, all combined substantially as described.

4. The magazine-tube split to form spring-fingers at its rear end, said fingers normally slightly expanded and then turned in, and the ring surrounding said tube near the fingers so as to compress or release the same, substantially as described.

5. The magazine having spring-fingers integral therewith, the ring surrounding said tube and sliding thereon, and the frame having a hole adapted to receive the fingers of the magazine but to press back the ring, substantially as described.

6. The magazine-tube and the cartridge retaining and feeding mechanism connected thereto, said tube having a circumferential bead or corrugation, and the spring-clasp on the barrel embracing the said tube next the bead, all combined substantially as described.

7. The frame, breech-closing bolt, and operating-lever pivoted in the frame, the thumb-lever loosely pivoted outside the frame, and a pin connecting said lever to the operating-lever through a curved slot in the frame, all combined substantially as described.

8. The frame, breech-bolt, and the operating-lever, and the hammer pivoted within the frame, said frame having a curved slot therein, and the two levers pivoted outside the frame, one connected to the hammer and the other to the operating-lever by pins passing through the curved slot, all combined substantially as described.

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

ANDREW BURGESS.

Witnesses:

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W. A. BARTLETT.