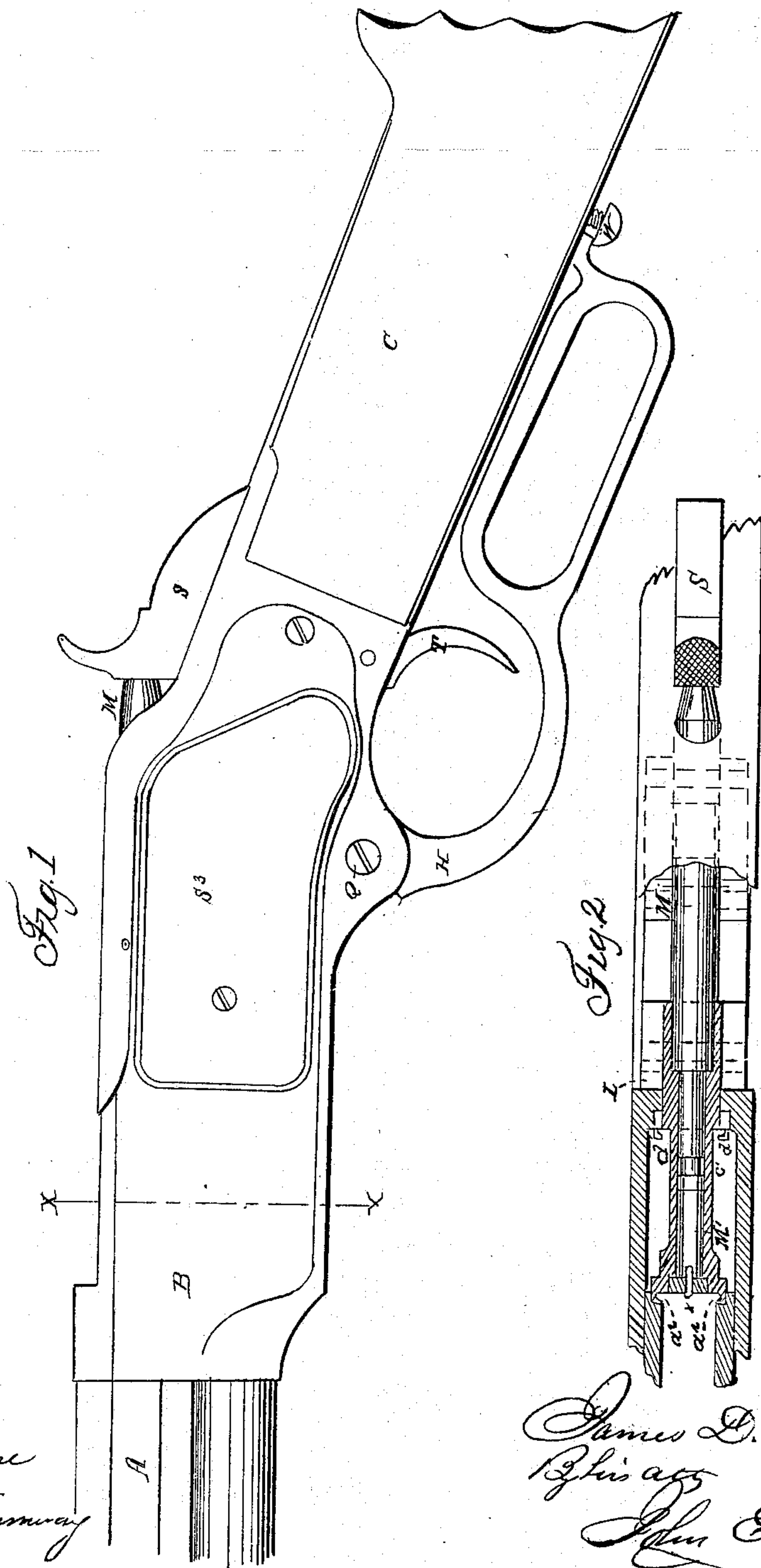


J. D. SMITH.

Magazine Fire-Arm.

No. 52,933.

Patented Feb. 27, 1866.



Witnesses.

Mr. A. Hine  
John H. Thompson

Inventor.

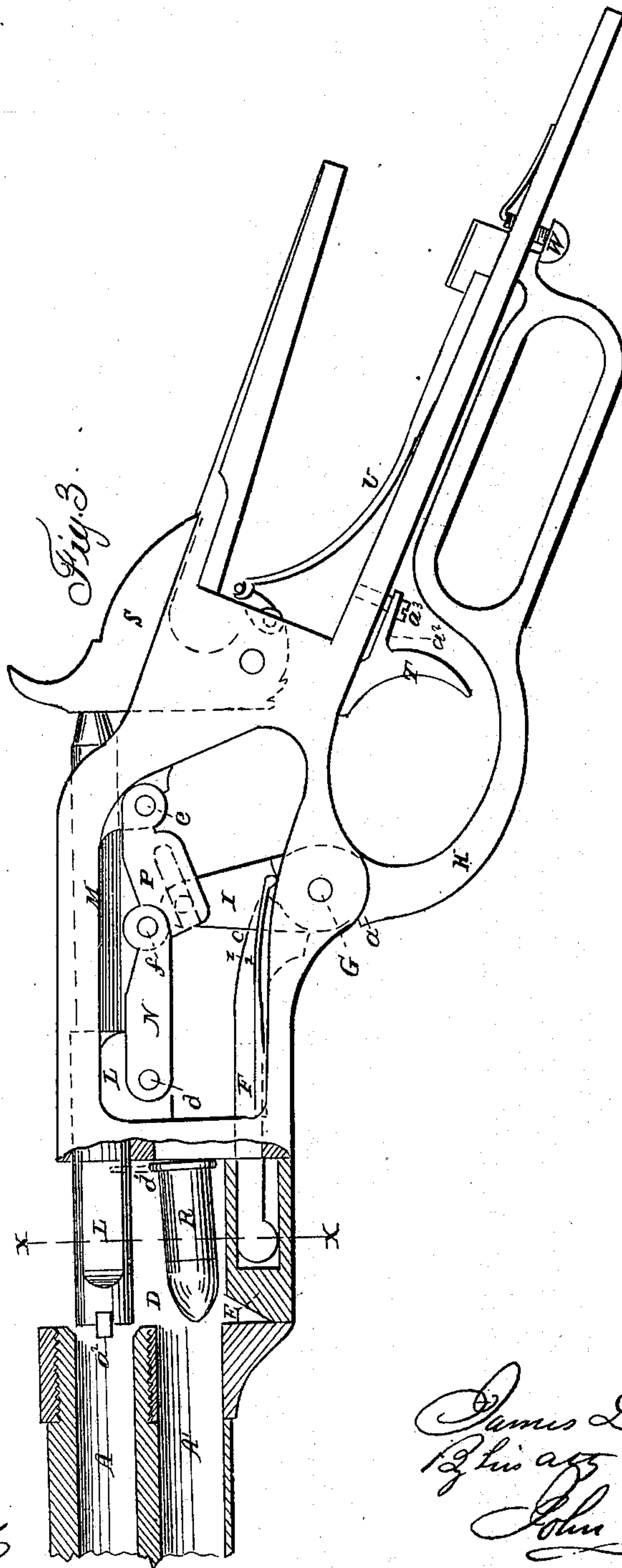
James D. Smith  
By his atty  
John E. Paul

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Witnesses:

Mr. A. Kline  
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Inventor.

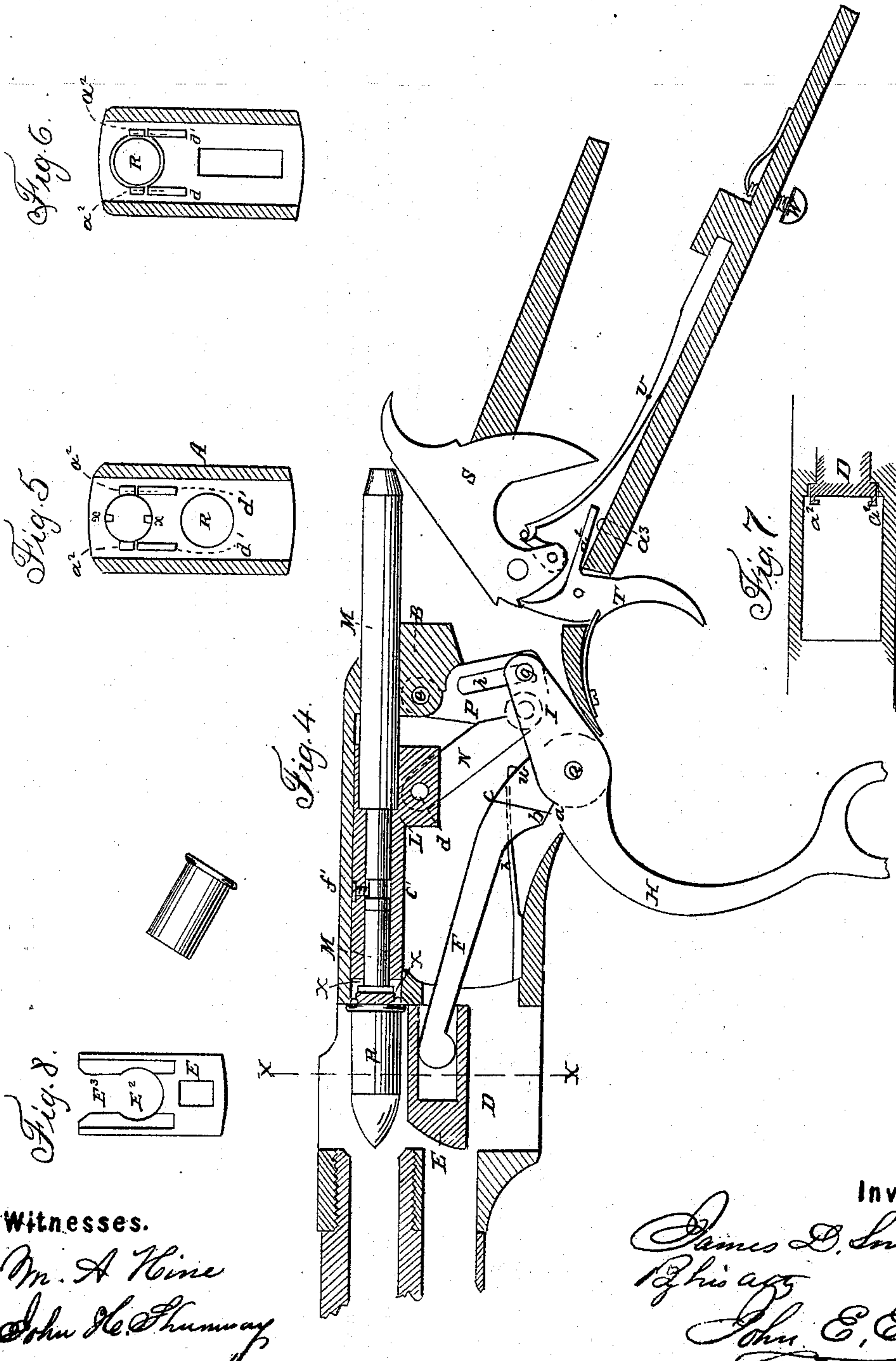
James D. Smith  
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Witnesses.

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# UNITED STATES PATENT OFFICE.

JAMES D. SMITH, OF BRIDGEPORT, ASSIGNOR TO OLIVER F. WINCHESTER,  
OF NEW HAVEN, CONNECTICUT.

## IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. 52,933, dated February 27, 1866.

*To all whom it may concern:*

Be it known that I, JAMES D. SMITH, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Repeating Fire-Arms; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view; Fig. 2, a sectional top view, the breech-pin closing the rear of the barrel; Fig. 3 a sectional side view; Fig. 4, a longitudinal central section; Figs. 5 and 6, a section through the frame on line *x x*, looking to the rear; Fig. 7, a sectional view of the frame, the breech-pin withdrawn; and Fig. 8, a rear view of the carrier-block.

My invention relates to an improvement in the repeating fire-arms patented by Horace Smith and Daniel B. Wesson the 14th of February, 1854, improved by B. T. Henry, patented October 16, 1860, in which several metallic cartridges are placed in a tube or magazine beneath the barrel of the arm and carried therefrom to the barrel, and after the cartridge is discharged the shell retracted by the movement of the trigger-guard; and my invention consists in an improvement whereby the retraction of the cartridge is made positive.

The operative parts of the arm in which I illustrate my improvements are substantially those found in the patents before referred to.

A is the barrel, of any known construction; B the frame, to the forward end of which the barrel is secured, and to the rear end a wooden stock, C.

In the frame B, and directly in the rear of the barrel, is formed a chamber or mortise, D, in which is placed a carrier-block, the office of which is to receive a cartridge from the magazine and raise it for insertion into the barrel; also to throw the discharged shell from the arm after it has been withdrawn from the barrel. For this purpose the said carrier-block E is constructed with a chamber, E<sup>2</sup>, (see Fig. 8,) to receive the cartridge from the magazine, and it is moved up within the chamber or mortise D to present the cartridge to the barrel

for insertion, and down when the cartridge has been removed from the carrier to the barrel, and is thus moved by means of the lever F, one end of which lies within the carrier-block E, the other hung to the pivot G.

H is a lever, serving both as a trigger-guard and as an instrument by which the several mechanical parts of the arm are made to operate. It is hung to the pivot G, upon which both the levers F and H may be freely moved.

By moving the lever H from the position denoted in Fig. 3 to that denoted in Fig. 4, a shoulder, *a*, formed upon the lever H strikes a corresponding shoulder, *b*, upon the lever F, raising the said lever and carrier-block E, as denoted in Fig. 4. By returning the said lever H the upper arm, I, of the lever H strikes another shoulder, *c*, on the said lever F, and returns the lever F with the carrier-block E to the position denoted in Fig. 3.

The breech-pin L is hollow, of cylindrical form, through which passes a piston, M. The rear end of the said pin L is formed, as seen in Figs. 4 and 3, so as to attach upon either side to a pivot, *d*, a link, N, of a toggle-joint, as denoted in broken lines, Fig. 2. The other links, P, of the toggle are hinged to the frame by a pivot, *e*, and the two links hinged together at *f*.

The upper arm, I, of the lever H extends up between the two toggle-joints, and through the said arm I a pin, *g*, passes, extending out upon either side, so as to enter a slot or groove, *h*, upon the inside of the links P, so that as the lever H is moved, as from the position in Fig. 3 to that in Fig. 4, the pin *g* will act to close the toggle and draw back the breech-pin L, which moves freely back and forth in the frame B, as denoted in Fig. 4, and by the return of the lever H will extend the toggle and return the breech-pin L, as seen in Fig. 3.

The raising of the carrier-block E, as before described, occurs after the breech-pin has been drawn back, and the breech-pin is returned before the return of the carrier-block, passing through the chamber E<sup>2</sup> in the carrier-block, for the purpose (as more fully hereafter shown) of removing the cartridge from the chamber E<sup>2</sup> in the carrier-block to the barrel. Therefore, in order to allow the carrier-block to return, it is necessary to cut a slot, E<sup>3</sup>, from the cham-



ber  $E^2$  up through the carrier-block, as seen in Fig. 8. This slot must be narrower than the chamber, in order to prevent the accidental removal of the cartridge in the said chamber, as also to cause the raising of the carrier-block to eject the discharged and withdrawn shell; and that this narrow slot may pass down over the breech-pin, which is nearly the same diameter as the chamber in the carrier-block, the breech-pin is reduced upon its two sides, as seen in Figs. 2 and 3.

A separate spring,  $z$ , for each of the levers  $F$  and  $H$  is secured upon the frame, the ends of which bear one upon the lever  $H$ , to retain the lever in its home position, the other upon the lever  $F$ , (see Fig. 4,) for the purpose more fully hereafter described. The lever  $H$  is held in its position against the frame by means of a thumb-screw,  $W$ , or an equivalent therefor.

Beneath the barrel, and opening through the frame to the carrier-block, is fixed a tube or magazine,  $A'$ , into which several cartridges are placed, to be successively removed by the carrier-block for insertion into the barrel, and are forced from the tube into the chamber in the carrier-block by means of a helical spring within the said tube.

Heretofore a latch upon the breech-pin has been arranged so that as a cartridge was forced into the barrel by the breech-pin the said latch would hook over the flange of the cartridge and withdraw the shell when the breech-pin was again withdrawn. This arrangement, though much approved, may sometimes fail to retract or withdraw the shell from the barrel. To avoid this possibility and make the retraction or withdrawal positive, I attach rigidly to the breech-pin upon either side a hook,  $a^1$ , (see Figs. 2, 3, and 5,) formed so as to receive the flange of the cartridge, and on the frame in the rear end of the mortise I place guides  $d^2$   $d^2$ , corresponding in form to the hooks  $a^1$   $a^1$  on the breech-pin, so that when the breech-pin is drawn back, as seen in Fig. 7, the hooks on the breech-pin will correspond to the guides on the frame.

When the carrier-block is raised, as in Fig. 4, to carry the cartridge up for insertion into the barrel, as from the position in Fig. 3 to Fig. 4, or Fig. 5 to Fig. 6, the rim of the cartridge passes up through the guides on the frame into the hooks on the breech-pin, as seen in Fig. 6:

To allow the carrier-block to pass over the guides on the frame and hook on the breech-pin, it is necessary to form recesses in the rear end of the carrier-block, as seen in Fig. 8. After the cartridge has thus passed up to the position denoted in Figs. 4 and 6, return the breech-pin to the position denoted in Figs. 2 and 3, which operation will insert the cartridge into the barrel.

The piston  $M$ , I form with an annular groove,  $c'$ , around it within the breech-pin, into which, through the breech-pin, I insert a screw-pin,  $f'$ , to prevent the withdrawal of the piston from the breech-pin, and so as to allow a little

play to the piston. The said piston extends back through the frame, and so as to slide freely therein, to the hammer  $S$ , so that when the pin is drawn back, as before described, the said piston will force the hammer  $S$  back to full-cock, as denoted in Fig. 4, and on being returned to the position denoted in Fig. 3 will leave the hammer held at full-cock by the trigger  $T$ , which, when released in the usual manner, will, by the reaction of the mainspring  $U$ , fly back to the position denoted in Fig. 3, striking the end of the piston  $M$ . In the forward end of the breech-pin I place a second piston,  $M'$ , constructed with two points,  $x$ , one upon the upper and lower side, projecting through the end of the piston, as seen in Fig. 2, so that when the cartridge rises by the movement of the carrier, as from the position in Fig. 3 to Fig. 4, or Fig. 5 to Fig. 6, the cartridge, coming in contact with the lower point, will force the piston  $M'$  back, and thus situated, after the cartridge has been inserted in the barrel and the hammer released, as before described, to strike the rear end of the piston, the force of the blow will cause the projecting points  $x$   $x$  to indent the metal of the cartridge sufficiently to explode the fulminate and ignite the powder within the cartridge.

After the cartridge has been discharged, withdraw the breech-pin, as before described. The hooks  $a^1$   $a^1$  upon the pin, being unyielding, will surely withdraw the shell from the barrel to the position denoted by the cartridge in Fig. 4. When in this position the carrier-block is again raised it will strike the shell, raising it from the hooks until the carrier-block is nearly up to its full height; then the spring  $z$  will fall into a notch,  $w$ , on the lever  $F$ , giving a sudden movement to the carrier-block, which will eject the discharged shell entirely from the arm, as denoted in Fig. 4, the carrier presenting another cartridge for insertion into the barrel, and thus the operation may be continued until all the cartridges in the magazine have been each in their turn discharged.

For some purposes, as for sporting or sharp-shooting, it is desirable that the hammer should be so caught by the sear when at full-cock as to be easily released, and that the pressure required upon the trigger to release the hammer may be at such times always the same, while at other times it is equally desirable that the hammer should be strongly held. To accomplish these objects it is necessary to construct the sear so as to catch more or less deep into the notch of the hammer at full-cock, as occasion may require.

In the fire-arm shown and described, the sear and trigger are both formed of one and the same piece; and the object is accomplished by forming an arm,  $a^2$ , upon the trigger, as shown in Fig. 3, placed upon the outside, and through which a screw,  $a^3$ , passes into the frame. A slot in the said arm  $a^2$  allows the arm to move freely on the said screw, so that when it is desired to nicely adjust the sear so that it shall fall partially into the hammer, turn the screw



$a^3$  into the frame, so that the head, bearing against the arm  $a^2$ , will stop the trigger when the sear has fallen into the hammer the distance required; or if a stronger hold by the sear is required, withdraw the screw from the frame.

In Fig. 4 the arm  $a^2$  is placed so as to come within the frame, and may be adjusted by the screw  $a^3$  in like manner as described for the arrangement shown in Fig. 3. Thus the greatest degree of nicety in the adjustment for the discharge of the arm is easily and simply attained.

By my improvement it is impossible to with-

draw the breech-pin without retracting the shell or cartridge, as the case may be.

Having therefore thus fully described my improvement, what I claim as new and useful, and desire to secure by Letters Patent, is—

The combination of the guides  $d^2$   $d^2$  with the hooks  $a^1$   $a^1$  upon the breech-pin L, substantially in the manner and for the purpose set forth.

JAMES D. SMITH.

Witnesses:

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