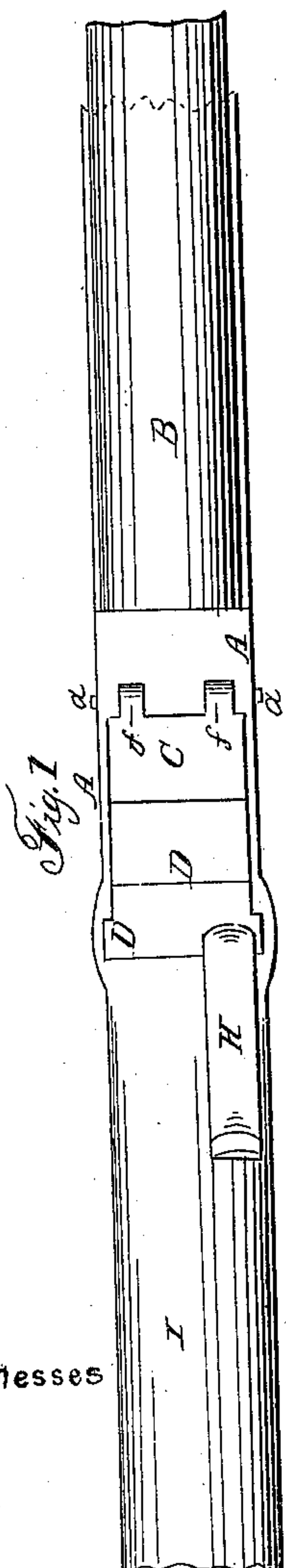
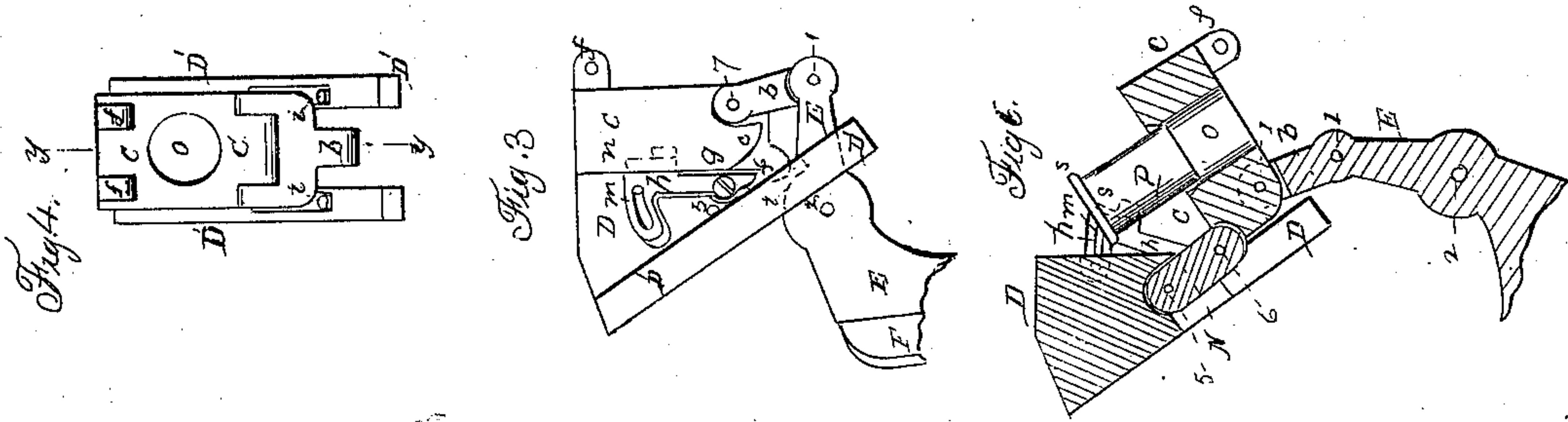


W. H. SMITH.
Breech-Loading Fire-Arm.

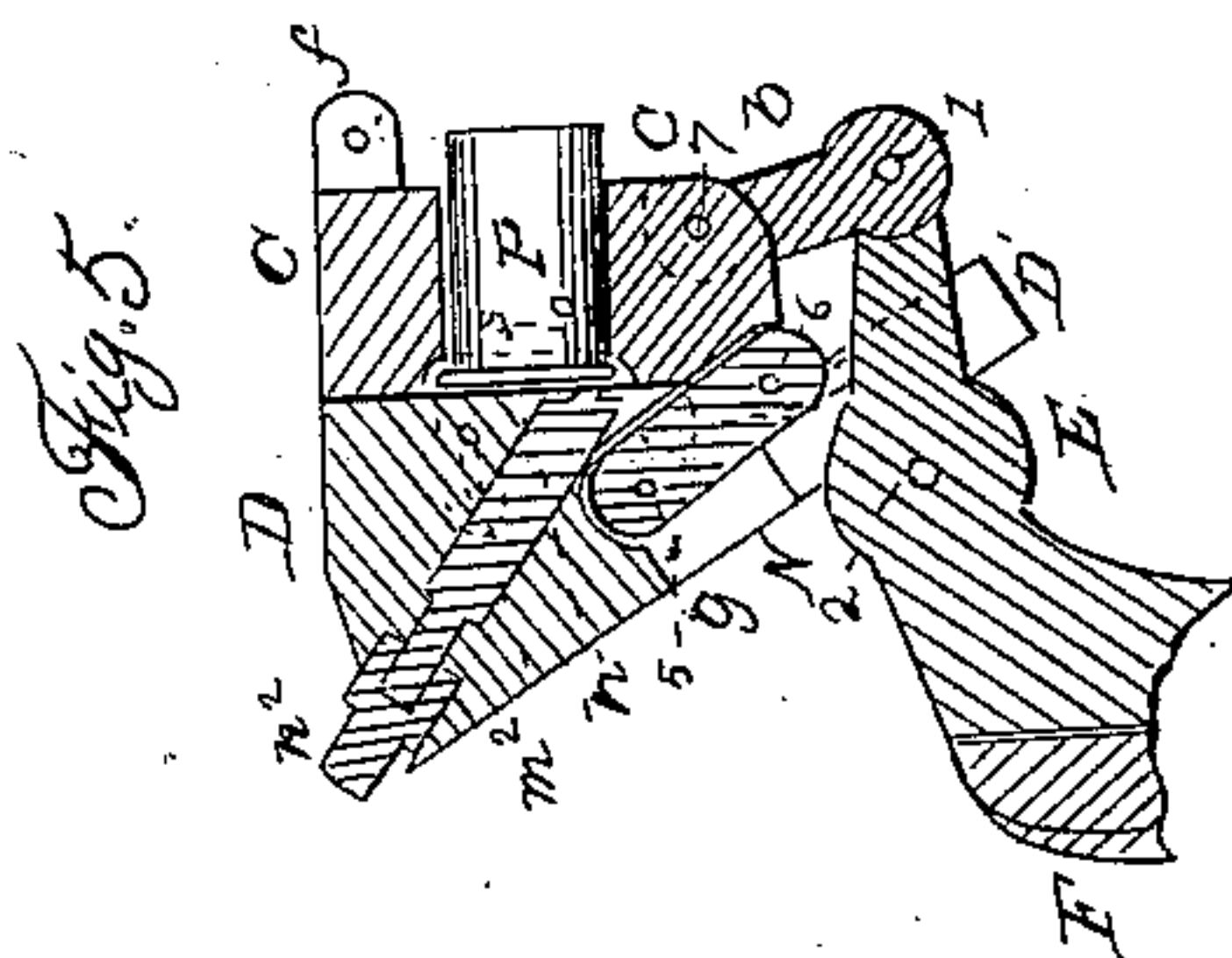
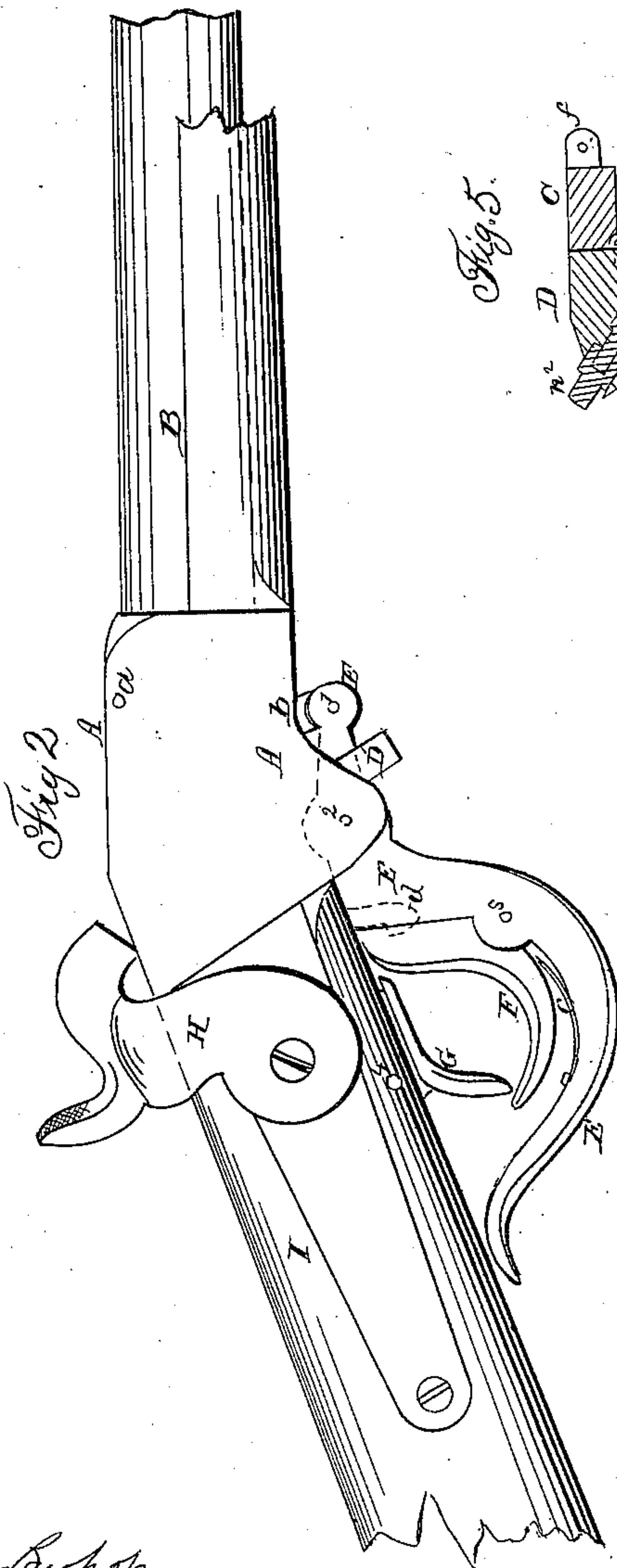
No. 43,957.

Patented Aug 23, 1864.



Witnesses

Andrew DeLacy Wm H Bishop



Inventor:

Wilson H. Smith
By his attorney
J. A. Mc. Intire

UNITED STATES PATENT OFFICE.

WILSON H. SMITH, OF BIRMINGHAM, CONNECTICUT, ASSIGNOR TO HIMSELF
AND ROYAL M. BASSETT.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 43,957, dated August 23, 1864.

To all whom it may concern:

Be it known that I, WILSON H. SMITH, of Birmingham, county of New Haven, in the State of Connecticut, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention relates to that class of fire-arms denominated "breech-loaders," and is particularly adapted for the use of the well-known metallic flanged cartridge.

My invention consists in the use of a vibratory breech-piece, having formed in it a chamber for the reception of the cartridge, in combination with the barrel of the arm, and a suitable device for retaining the said breech-piece firmly against the rear end of the barrel, as will be hereinafter more fully set forth; and my invention further consists in the employment, in combination with the vibratory chambered breech-piece, of a sliding abutment arranged to operate between the back part of the frame of the arm and the rear side of the vibratory chambered breech-piece, in such manner as to wedge the latter firmly up toward the rear end of the barrel and retain it there, as hereinafter more fully explained; and my invention further consists in the employment, in combination with the sliding abutment and vibratory chambered breech, of spring-claws or their equivalents, for extracting and discharging from the gun the empty cartridge-case, as hereinafter more fully set forth.

To enable those skilled in the art to make and use my improved breech-loader fire-arm, I will proceed to describe its construction and operation, referring by letters to the accompanying drawings, forming part of this application, and in which—

Figure 1 is a top view of a gun embracing my improvements, (having the rear portion of stock and forward part of barrel broken off.) Fig. 2 is a side elevation of the same. Fig. 3 is a skeleton side view of the working parts. Fig. 4 is a front view of the same. Fig. 5 is a detail sectional view at the line *y y*, Fig. 4; and Fig. 6 is a similar section showing the parts in a different position.

In the several figures I have indicated the same part by the same letter of reference.

A is the metallic frame of the gun, B the barrel, and I the stock. The frame A is slotted vertically, or cut through for the reception of a vibratory breech-piece, C, and a sliding piece, D, and has the rear end of the barrel B screwed into its front portion in such manner that the bore of the barrel opens into the slotted or cut-out portion of said frame A.

The vibratory breech-block C has a chamber or bore (corresponding about in diameter to the bore of the barrel B) passing entirely through it, and is made of the proper width to fill the slot or opening in frame A, and is formed with lugs *f f*, by which, through the medium of a pin, *a*, the said piece *c* is pivoted to the frame A. Immediately in the rear of the vibratory chambered breech-piece *c* is located the sliding abutment D. This piece D, as shown, is of a wedge shape, and is formed with projecting ribs or ledges *D'* along its two rear and inclined edges, which fit into correspondingly-shaped grooves or depressions in the frame A. This wedge D is so arranged as to slide freely up and down in the direction of the inclined ways *D'*, and is connected near its middle to the lower part of breech-block C by means of a link, N. (See Figs. 5 and 6.)

E is a vibratory arm, which (when in its normal position) constitutes the guard, and serves to operate the moving parts of the gun. It is pivoted at 2 to the lower portion of frame A, and is coupled by a pivot on pin 1, at its forward end, to the lower extremity of a link, *b*, the upper end of which link is connected by a pin, 7, to the vibratory block C.

At Fig. 5 I have represented a metallic cartridge-case, P, in the block C in the position in which it would be exploded, and at Fig. 6 I have shown the said case as it would appear while being withdrawn from the piece C and just before it is discharged or thrown out of the gun. *m*² (see Fig. 5) is a square rod, which is arranged in a hole in the block D in such manner as to be free to slide a short distance up and down in its bearings. It is formed with a projection, *o*, at its lower end, adapted to strike against and explode the cartridge, and is provided at its upper end with a cone-like head, *u*², adapted to receive the blow of the hammer H, which is hung, in connection

with the lock, in any desired manner, and released by the trigger G in the usual way.

F is a curved finger-piece, pivoted at 3 (see Fig. 2) to the arm E, and held in the relative position with said arm shown by means of a spring, *c*. The upper front portion of this spring finger-bar F is notched out, to accommodate the catch *d*, and by means of this catch and finger-bar F the guard-arm E is locked in the position shown at Fig. 2, or released, to allow it to be swung down at the pleasure of the operator.

h h are two vibratory arms, which are pivoted at their lower extremities by pins *g*, (see Fig. 3,) one on each side, to the block D, which is cut out to receive them. These arms *h* are formed with arcs *m* at their upper portions, which have a curved slot to accommodate a pin, *n*, (see Fig. 3,) arranged in the block D, and so as to project through the slot in *m*. These arms *h* may be swung forward at their upper ends, as seen at Fig. 6, but are continually pressed or held back by springs *i*, which press against their lower ends. The arms *h* are made with projections or lips, which fit into cavities in the rear surface of block C and grip or inclose partially the flange of the cartridge, as will be presently explained.

The operation of my improved breech-loading fire-arm may be thus explained: To load the arm the guard-arm E is unlocked and depressed to the fullest extent, whereby the wedge D is caused to slide up and the block C to swing upward into nearly the position seen at Fig. 6, these parts moving a little farther than there shown. A metallic flanged cartridge, P, is then inserted from the rear and top into the chamber or bore of the block C, and the arm E then pulled back into the position shown at Fig. 2, in doing which the block C is caused to swing down against the rear end of the barrel B, and the protruding end of the case P (see Fig. 5) is swung or slid into the bore of the barrel, covering the joint between the latter and the breech-block C, and the lips of the arms *h* are sprung over the flange of the cartridge P. (The arms *h* are made with a sufficient amount of spring or elasticity to allow them to be thus laterally forced over the flange of the cartridge.) The working parts are now all in the relative positions seen at Figs. 2, 3, and 5, and by pulling the trigger G the hammer H will be brought down in the usual manner, and, striking on the cone *u*², will force the lower end, *o*, of the plunger *m*² (see Fig. 5) suddenly against the flange of the cartridge P and explode the latter. To reload, the same operation as first mentioned is gone through with by the operator; but this time the empty (exploded) cartridge-case is extracted or withdrawn from the block C and thrown entirely out of the gun in the following manner: As the adjacent surfaces of breech-block C and abutment-

wedge D move away from each other the lips of arms *h* pull on the flange of the cartridge-case P and draw it out of the bore or chamber of piece C; but as they pull the case P out they themselves are pulled forward, turning on their pins *g* until the pins *n*, around which the arcs *m* play, stop them. The parts are shown just approaching this condition at Fig. 6. At this time the lower portion of the flange of case P is bearing against the face of block D, and the springs *i* are under strain from the forward position of arms *h*, and the lips of said arms are consequently pressing hard against the front edge of the cartridge-flange. As the adjacent surfaces of blocks C and D recede a little farther from each other, and the moment the forward end of case P leaves the bore of C, the arms *h* fly back to their normal position and the case P will be flipped or thrown backward and upward and several feet away from the arm.

It will be seen that by making the bore or chamber for the reception of the cartridge in a vibratory block, C, as shown and described, the cartridge can be very readily inserted, since the chamber is brought into a nearly vertical position and up out of the frame of the gun for loading, while at the same time the case P projects into the bore of the barrel and forms a perfect joint between block C and the barrel where their bores come together.

It will be seen that, by means of the vibratory breech C and sliding wedge D, the several parts are brought into perfect contact and readily and firmly maintained so, while at the same time the whole machinery of the gun is exceedingly simple.

By means of the mechanism shown the empty cartridge-case is previous to each loading, perfectly and effectually discharged entirely from the arm and out of the way.

I wish it to be understood that the construction of the peculiar mechanism shown may be varied without departing from that part of my invention which relates to the discharging of the empty case, the gist of the improvement being in a mechanism for throwing the case clear of the gun.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a breech-piece containing the cartridge-chamber with a sliding wedge-like abutment or back piece, substantially as described, for the purpose set forth.

2. The employment, in combination with a movable chambered block and a sliding abutment, of a mechanism or device for extracting the cartridge-case and discharging it from the gun, substantially in the manner set forth.

WILSON H. SMITH. [L. S.]

In presence of—

J. N. MCINTIRE,
ANDREW J. TODD.