

Swinging breech-block,
Rearward & Downward,

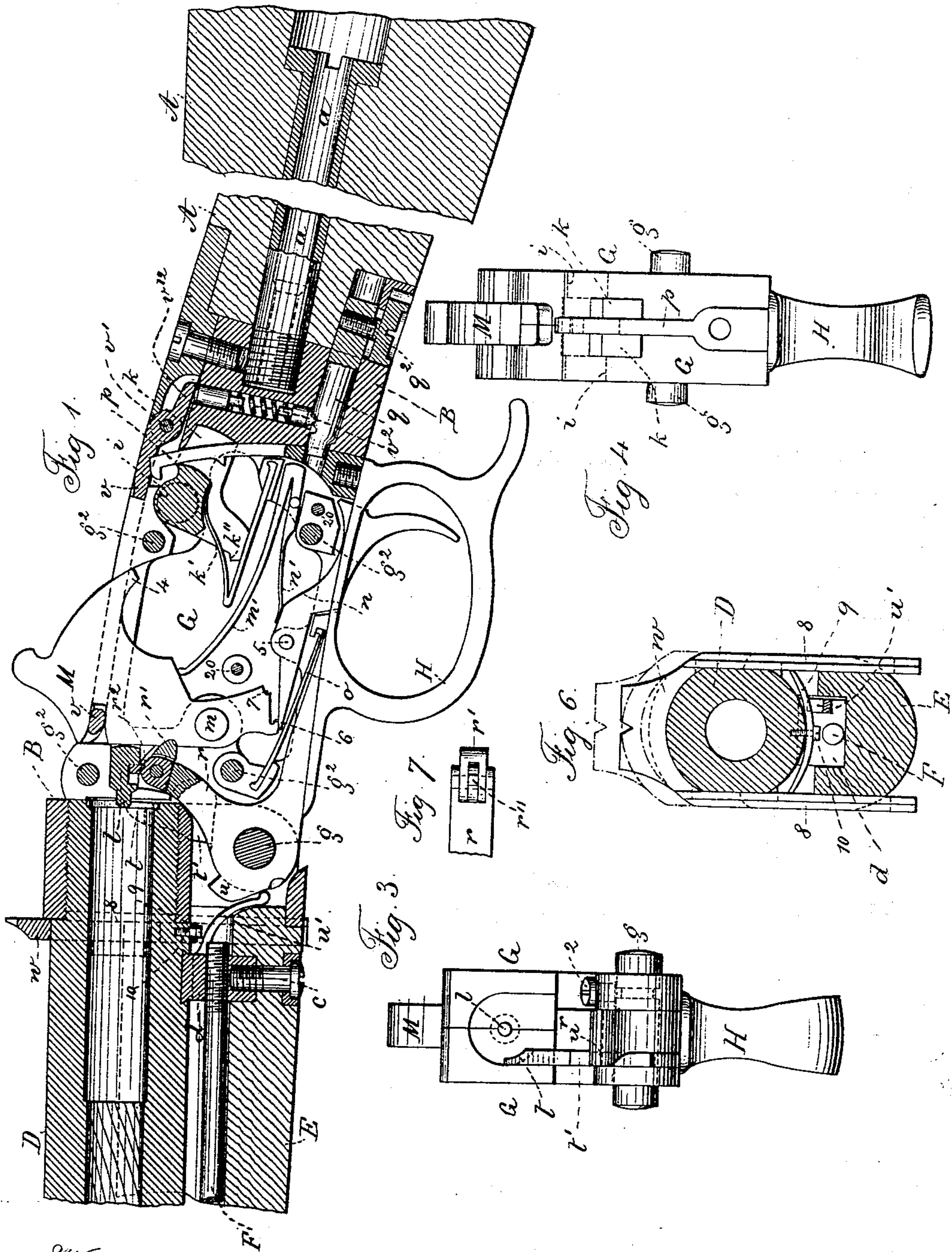
(No Model.)

2 Sheets—Sheet 1.

H. F. CLARK.
BREECH LOADING FIRE ARM.

No. 328,005.

Patented Oct. 13, 1885.



Witnesses:
J. Stait
Chas. N. Smith

Inventor:
Henry F. Clark
per Lemuel W. Perrell

2. FIREARMS,
Breech-loading,
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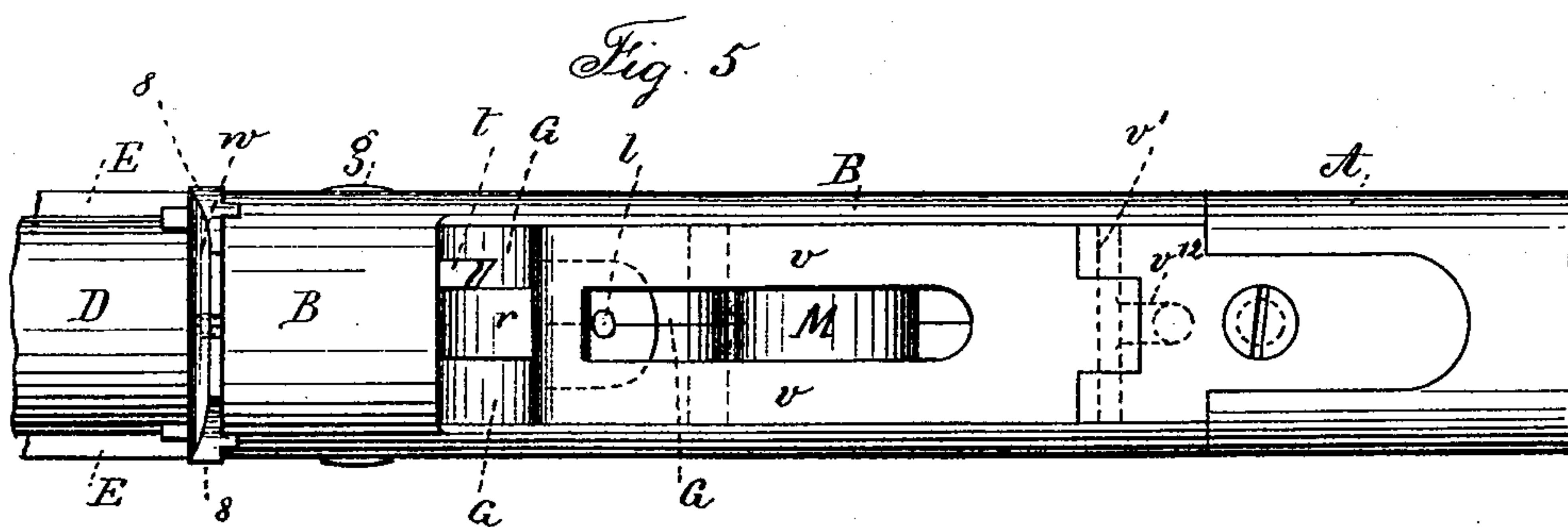
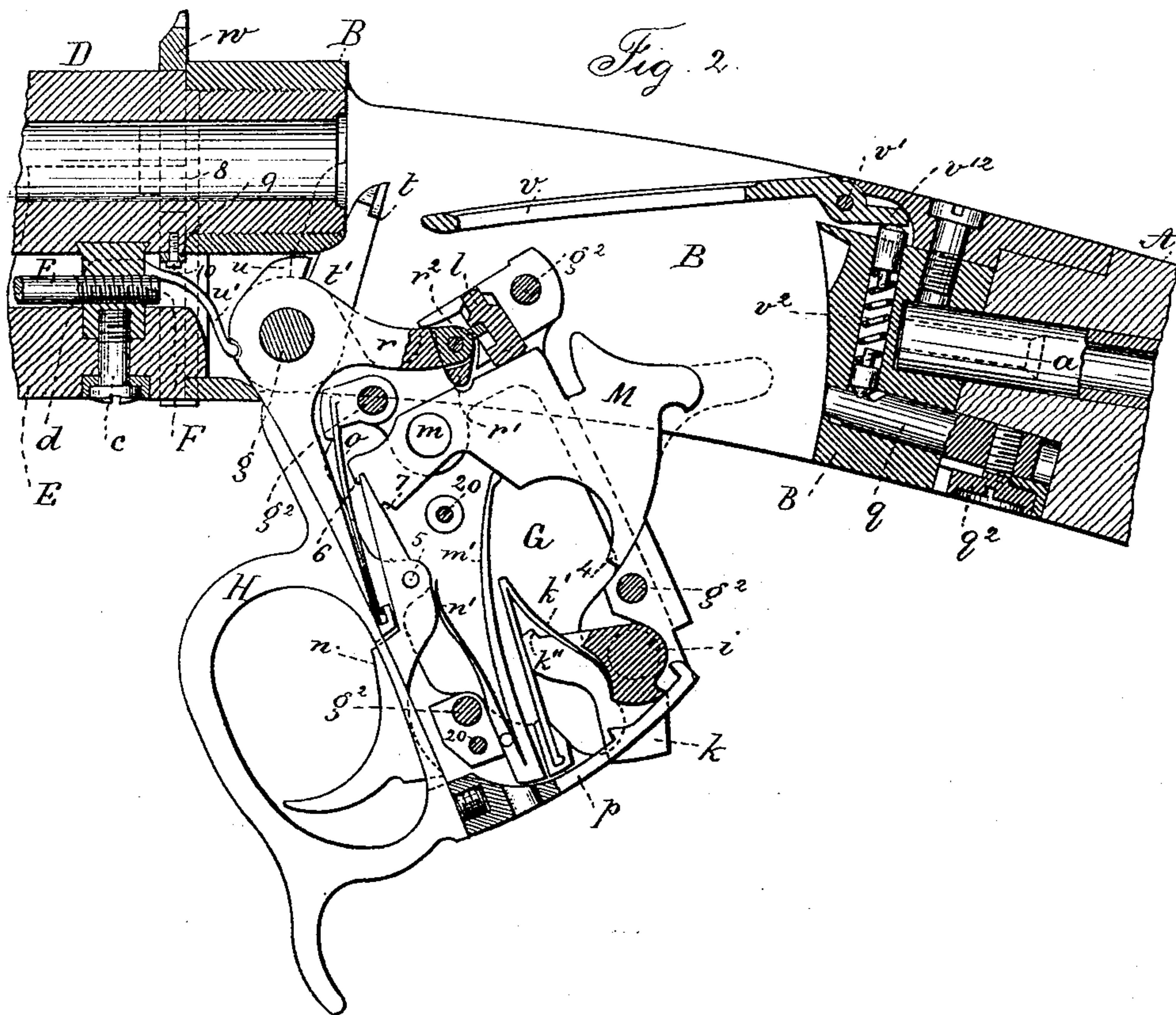
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UNITED STATES PATENT OFFICE.

HENRY F. CLARK, OF POUGHKEEPSIE, NEW YORK.

BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 328,005, dated October 13, 1885.

Application filed July 31, 1884. Serial No. 139,242. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. CLARK, of Poughkeepsie, in the county of Dutchess and State of New York, have invented an Improvement in Breech-Loading Fire-Arms, of which the following is a specification.

In this breech-loading fire-arm the trigger-guard is pivoted at its forward end, and has a projection at its rear, which being pressed downward, the hammer is thrown back to half-cock, the firing-pin drawn back, and the locking-dog withdrawn. The further movement in the same direction opens the breech, swinging it downward and forward, and then an extractor is brought into action to pull back and eject the shell, after which another cartridge is to be inserted and the breech closed. The parts are very strong and simple, and the arm is not liable to become obstructed while in use. As the breech is closed the locking-dog is thrown back into its place in the housing, and the hammer insures the driving of such locking-dog entirely home in the act of cocking the hammer, so that the arm cannot be fired until the breech is properly closed and secured.

In the drawings, Figure 1 is a section longitudinally of the fire-arm with the breech closed. Fig. 2 is a similar view with the breech open. Fig. 3 is an elevation of the front end of the breech-block detached. Fig. 4 is a rear view. Fig. 5 is a plan of the cartridge-support and the housing with the breech-block depressed. Fig. 6 is a cross-section of the barrel and stock, showing the sight and the manner in which it is held on the barrel; and Fig. 7 is a plan of the pusher and finger that acts upon the hammer and firing-pin, respectively.

The stock A is of ordinary character, and the frame or housing B, into which is introduced the breech-block, is made with its sides in line with the small of the stock and with a mortise through it. The stock is attached to the housing by the hollow screw-bolt *a*, introduced from the rear end of the stock and entering the metal of the housing at the rear, as seen in Figs. 1 and 2. This bolt is made tubular to obtain the required strength without being unnecessarily heavy.

The barrel D of the fire-arm is screwed at its rear end into the forward part of the hous-

ing, and below the barrel D there is a stud, *d*, the base of which passes into a dovetailed recess across the barrel. This stud *d* performs three duties: first, it receives the screw *e*, by which the wooden part E of the stock under the barrel is attached; second, this stud has a hole in it to receive the end of the wiping-rod F, and by means of which it is secured in place, such stud-hole having in it a screw-thread for the reception of the threaded end of the wiping-rod; third, said stud *d* also receives and supports one end of the extractor-spring hereinafter described.

The breech-block G is pivoted to the housing B by the cross-pin *g*, which pin also forms the pivot for the forward end of the trigger-guard, the dowel-pins 20 insuring the proper position of the two sides. The breech-block G is made in two parts, that are secured together by the screws *g*², and the joint for the trigger-guard comes between the two parts at their forward ends.

The pin *g* is slightly tapering. To hold the same when properly placed, I provide a groove or neck and a screw, 2, passing through one joint-eye of the breech-block into such groove. By loosening this screw the pivot-pin can be taken out.

The rear end of the breech-block is a segment of a circle from the center of the pivot-pin *g*, in order that the breech-block may swing freely up to its proper place within the mortise through the housing. There is within the breech-block the locking-dog *k*, upon a pivot, *i*, and the spring *k*¹ acts to swing the locking-dog up into its place, so that it may enter a mortise or recess in the housing when the breech is up in its place, and thereby hold the breech and prevent the same opening by the recoil. The back end of the locking-dog is nearly a segment of a circle, and the bottom of the recess for the same in the housing is similarly shaped, but both are slightly eccentric to the pivot *i*, so that the locking-dog acts as a cam and compensates for any wear which may take place on its face or in the recess provided for it in the housing. Should said dog fail to go entirely to place when the breech is closed, its movement is completed as follows: There is an arm, *k*², on the forward and lower part of the locking-dog, against which the rear end, 4, of the hammer M acts when the hammer is

drawn back to full-cock, thereby completing the movement of the locking-dog and securely fastening the breech-block.

The hammer M is between the two halves, forming the breech-block, and it is pivoted at *m* and provided with a mainspring, *m'*. This spring *m'* is preferably extended at its lower end as the thin trigger-spring *n'*. The trigger *n* is pivoted at 5, and is between the two halves of the breech-block, and upon the hammer are the half-cock notch 6 and the full-cock notch 7 for the end of the trigger or sear. The firing-pin *l* passes through the breech-block and in line with the center of the barrel.

The trigger-guard forms a lever for opening the breech and for moving the firing-pin and hammer, the trigger-guard being pivoted at its forward end upon the pin *g*, which is also the pivot for the breech-block, the joint-piece of the trigger-guard passing in between the two halves of the breech-block.

The spring *o* is fastened at its forward end within the breech-block, and its rear end acts upon a hook-shaped projection upon the trigger-guard and holds the same in position. At the rear end of this trigger-guard there is the retractor *p*, which passes up between the two halves of the breech-block and acts upon the locking-dog, so that as the trigger-guard is pressed downwardly at its rear end the retractor *p* swings the locking-dog downward and forward out of the housing and relieving the breech-block, so that thereafter the breech-block and the trigger-guard can move together as they swing upon the pivot *g*. The retractor *p* may be made in any desired manner; but I prefer to slot the locking-dog vertically and centrally, as seen in Figs. 1, 2, and 4, so that the retractor may be in the form of a segmental arm corresponding to the curvature of the rear of the breech-block, and at the top of this arm there is an L-shaped projection that acts above the locking-dog to swing it downwardly when the pivoted trigger-guard is depressed. The retractor also has a lug or projection which comes in contact with a shoulder inside the breech-block after it has performed its office of drawing down and out the locking-dog, which prevents any further motion of the pivoted trigger-guard away from the breech-block.

I here remark that usually the locking-dog will hold the parts when the gun is being carried from place to place; but to avoid risk of the trigger-guard being swung away from its position in handling the gun, I provide a slide-bolt, *q*, in the housing, the forward end of which bolt passes into a hole at the base of the retractor, to hold the same and the trigger-guard lever firmly in place. This bolt is moved back and forth by the hand acting upon the thumb-piece *q'*.

Above the pivot-bolt *g* the trigger-guard is provided with an arm, *r*, having a forked upper end, and within the fork is a forked pusher, *r'*, and within the forked pusher *r'* is a finger,

r''. These parts are all secured together by a pivot pin or screw. There is a limited extent of motion allowed to *r'* and *r''* upon the pivot, the respective parts being made with nearly flat bases that come in contact with the bottom of the fork in *r*, and prevent too great an extent of movement.

The hammer M at its forward edge is notched for the reception of the end of the pusher *r'*, and one side of the firing-pin *l* is notched for the end of the finger *r''* to pass into.

When the pivoted trigger-guard is depressed by the pressure of the hand against its rear end, and the locking-dog relieved, the hammer is simultaneously brought to half-cock by the pusher *r'* acting against the hammer and giving sufficient motion to draw back the hammer and cause the trigger-sear to enter the half-cock notch 6. At the same time the finger *r''* draws back the firing-pin so that it is out of the way, and the slot in the firing-pin is longer than the width of the finger acting on the same, so that said firing-pin is unacted upon by the finger when the breech is closed, and it is free to remain in the breech-block, and not to be driven forward by the closing of the breech and the pivoted trigger-guard.

At the side of the chamber in the barrel there is an extractor, *t*, adapted to drawing the cartridge back, as now usually employed; but I make use of a peculiar device for acting upon the extractor. The extractor is at the end of an arm, *t'*, having an eye, through which the pivot-pin *g* passes. Upon the joint of the pivoted trigger-guard, at the forward part thereof, there is a finger, *u*, projecting laterally in front of the eye of the extractor, and the parts are so shaped that the finger *u* does not come into contact with the arm of the extractor until the breech-block is nearly opened, at which time the extractor and breech all swing together during the last part of the opening movement, and the cartridge is drawn back; and to give the extractor a sudden movement to the rear, and throw out the loosened and partially-extracted spent shell, I employ the spring *u'*, before named as projecting from the stud *d*. The end of this spring bears against the forward part of the extractor's eye. In this eye is a notch, and the end of the spring sliding down the inclined upper surface of the notch gives the extractor a sudden backward movement to eject the shell.

The shell need only be inserted far enough to clear the end of the plate or guide *v* as it is pushed home by the breech-block in closing. The firing-pin having been previously drawn back, there will be no danger of premature explosion.

In order to support and guide the cartridge into the chamber of the barrel, I make use of a swinging plate, *v*, that is hinged at the rear end, at *v'*, to a plate that is screwed to the housing, and this plate is sufficiently narrow to swing down into the mortise in the housing into the position shown in Fig. 2, and occupy

a position nearly in line with the bottom of the cartridge-chamber of the gun, so that the cartridge can rest upon the plate in being pushed into the gun or while the cartridge is being ejected. It is necessary to slot this plate *v* of a width and length sufficient to allow the hammer-head to rise up through such plate as the breech is closed. A slot in the hammer securely locks the plate when the gun is fired by its upper part passing over the cross-piece at end of the slot in the plate. Both ends of the slot in the plate *v* are rounded to allow the shell to slide freely in either direction. The plate *v* is pressed up by the action of the breech-block as the latter is closed, but such plate is thrown down by a spring as the breech is opened. I extend the plate *v* to the rear as a tail, *v*¹², against which the spring presses. The upper part of the tail *v*¹², coming against the plate that is screwed to the housing, prevents the plate *v* from dropping farther than is required when the breech-block is thrown down; and I prefer to introduce a helical spring, *v*², into a transverse hole in the back part of the housing, and to employ two studs, one at each end of such spring, the top one acting upwardly against the tail of the plate *v* and the other one downwardly against the top of the sliding bolt *q*, so as to apply to the latter sufficient friction to prevent the bolt moving by any concussion or agitation of the gun.

In order to apply the sight to this breech-loading gun I provide vertical channels—one at each side of the forward end of the housing. I use a bridge, *w*, with legs 8 8, having ribs which fit the channels in the housing, and are held in place by suitable shoulders on the barrel at each side. The arc-spring 9 is attached to the under side of the barrel by the screw 10, so that the ends rest against the inner surfaces of the legs 8 8, and guide and hold the sight as it is moved up or down.

By my improvement it will be seen that the barrel may be easily wiped out from the breech, and the interior of the barrel can be examined from end to end at the rear. When desired the hammer, may be shaped as shown by dotted lines in Fig. 2, so as to be more easily carried at "support arms." The housing and stock are so nearly in line with the barrel that there is no risk of the parts springing when the gun is fired, thus insuring great strength and accuracy in firing. The swinging breech-block and pivoted trigger-guard moving together, the momentum and weight cause the extractor to act rapidly and powerfully to withdraw the shell and throw it out of the gun. The sight herein shown and described is not claimed by me in this application, as the same forms the subject of my application for patent filed September 1, 1884, Serial No. 141,893.

I claim as my invention—

65 1. The combination, with the breech block G and swinging trigger-guard H, both pivoted upon the pin *g*, of the retractor *p* at the

rear of the trigger-guard, the locking-dog *k*, over which the retractor *p* passes, the spring *k*' and a projection, *k*², upon the locking-dog, 70 and the hammer M, with the projection 4, to press upon the locking-dog *k* and insure its action, substantially as set forth.

2. The combination, with the breech-block G and swinging trigger-guard H, both pivoted upon the pin *g*, of the retractor *p* at the rear of the trigger-guard, the locking-dog *k*, over which the retractor *p* passes, the spring *k*' and a projection, *k*², upon the locking-dog, the hammer M, with the projection 4, to press 80 upon the locking-dog *k* and insure its action, the slide-bolt *q*, entering a recess in the trigger-guard, and spring *v*², substantially as set forth.

3. The combination, with the breech-block 85 G and hammer M, pivoted within the breech-block, of the swinging trigger-guard H, the retractor *p* at the rear of the trigger-guard, locking-dog *k* within the breech-block, the swinging plate *v*, pivoted at *v*' to the stock, 90 the arm *r* and forked pusher *r*' upon the trigger-guard, the finger *r*² upon the end of arm *r*, the firing-pin *l*, having a slot in which said finger acts, the extractor *t*, and its arm *t*', swinging on the pin *g*, the finger *u* upon the trigger-guard, for operating the extractor, and the extractor-spring *u*', the parts being constructed and operating substantially in the manner and for the purposes set forth.

4. The combination of the breech-block G, 100 hammer M, pivoted within the breech-block, the swinging trigger-guard H, and the arm *r*, formed with the trigger-guard, a pivot, *g*, for the breech-block and trigger-guard, the forked pusher *r*', pivoted to the arm *r*, for moving the hammer M to half-cock, the finger *r*² upon the arm *r*, and the firing-pin *l*, slotted for the reception of the finger, the cartridge-extractor *t*, the finger *u* upon the trigger-guard, for operating the extractor, and the spring *u*', 105 for imparting to it a final movement in throwing out the shell, and the swinging plate *v*, pivoted at *v*' upon the stock, and over which the cartridge-shell is passed, substantially as set forth. 115

5. The combination, with the breech-block G, of the swinging trigger-guard H, pivoted upon the pin *g*, and having an arm, *r*, and pusher *r*', the hammer M, pivoted within the breech-block and having the notches 6 and 7, 120 the trigger *n*, pivoted upon the trigger-guard, and its spring *n*', for holding the hammer, whereby the hammer is half-cocked as the breech-block is swung open by the trigger-guard, substantially as specified. 125

6. The combination, with the breech-block G, of the swinging trigger-guard H and its arm *r*, the pivot-pin *g*, pusher *r*', and finger *r*² upon the arm *r*, the hammer M within the breech-block and acted upon by said pusher, 130 the firing-pin *l* above the finger *r*², and sliding in the forward part of the breech-block, the trigger, trigger-spring, and the spring *o* to the trigger-guard, substantially as specified.

7. The combination, with the breech-block G, of the swinging trigger-guard H, the pivot-pin g , the finger u at the front part of the trigger-guard, the extractor t , pivoted upon the pin g and acted upon by the finger u , and the spring u' , pressing upon the notched eye of the extractor, substantially as and for the purposes set forth.

8. The combination, with the breech-block G, pivoted at g , and the hammer M within the breech-block, of the swinging plate v , pivoted at the rear end and slotted for the passage of the hammer and forming a cartridge-support, the tail-piece v^{12} at the rear end of the plate v , and the spring v^2 within the housing, substantially as specified.

9. The combination of the breech-block G and the swinging trigger-guard H, pivoted together on the pin g , the curved retractor p at the rear part of said trigger-guard, the slide bolt q in the stock at the rear of the

breech-block, the thumb-piece q^2 , and the spring v^2 , there being a hole in the lower part of the retractor, into which the bolt is passed to lock the trigger-guard, substantially as specified.

10. The combination of the breech-block G and trigger-guard H, pivoted upon the pin g , the spring o in the breech-block, acting upon the trigger-guard, the retractor p at the rear part of the trigger-guard, the locking-dog k , and its spring k' , whereby the downward movement of the trigger-guard and retractor act to disengage the locking-dog and release and swing the breech-block, substantially as specified.

Signed by me this 24th day of July, A. D. 1884.

HENRY F. CLARK.

Witnesses:

LEMUEL W. SERRELL,
WILLIAM G. MOTT.