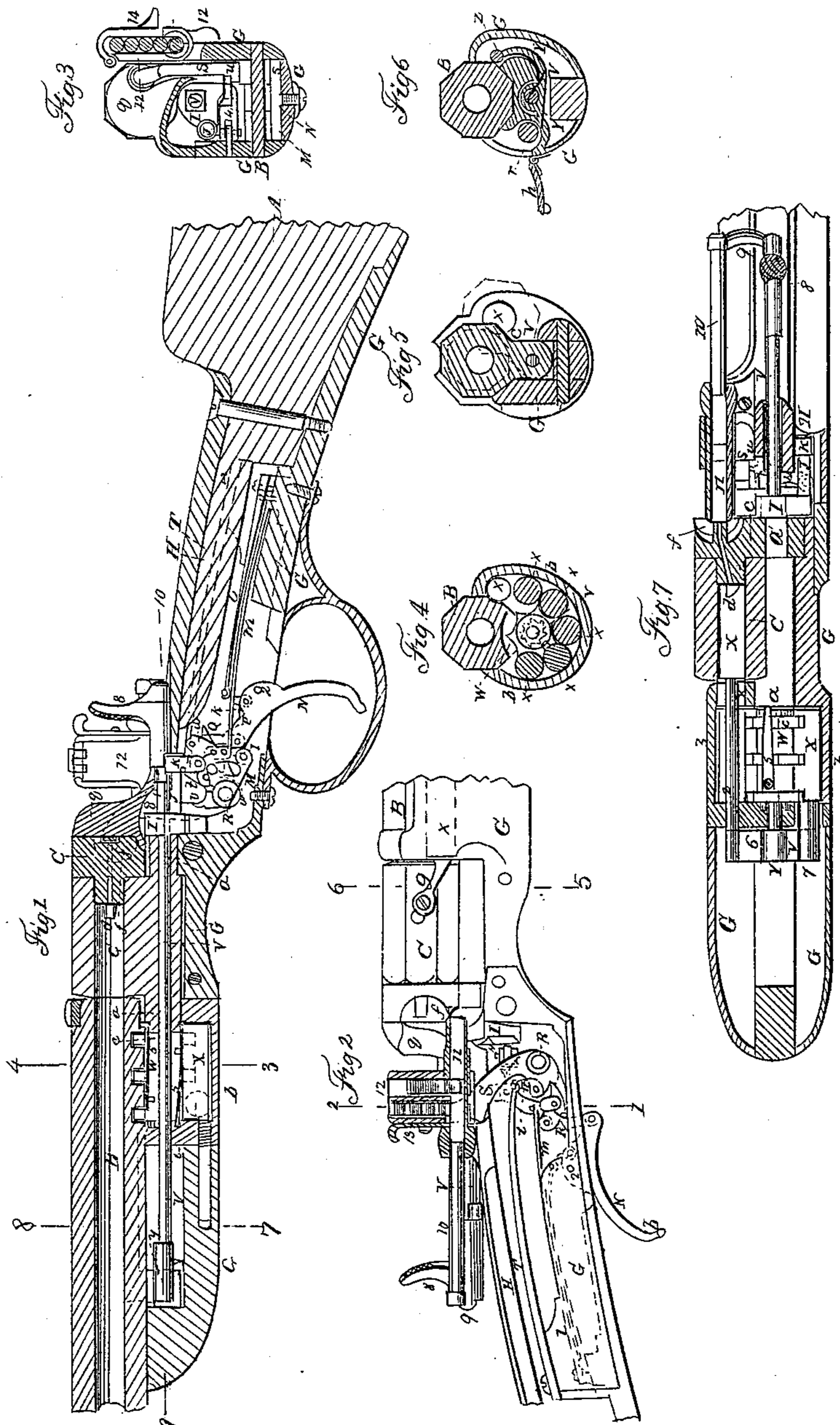


J. C. SMITH.
Magazine Fire-Arm.

No. 14.034.

Patented Jan. 1, 1856.



Witnesses:

Henry Howson
Theodore Rugman.

Inventor:

John C. Smith

UNITED STATES PATENT OFFICE.

JOHN C. SMITH, OF CAMDEN, NEW JERSEY.

IMPROVEMENT IN REPEATING MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. **14,034**, dated January 1, 1856.

To all whom it may concern:

Be it known that I, JOHN C. SMITH, of the city of Camden and State of New Jersey, have invented certain new and useful Improvements in Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the figures and letters of reference marked thereon.

My invention relates to that class of fire-arms in which a radiating or hinged breech is used; and consists in imparting to the said breech a lateral reciprocating movement by means of a series of levers, catches, and springs, in connection with a trigger, as hereinafter more fully described, in such a manner that by the operation of the said trigger the breech may be made to radiate free from the barrel and have its chamber exposed for receiving the cartridge, and by the same trigger be brought back so that its chamber coincides with the bore of the barrel. The hammer for striking the cap is arranged, in connection with the same trigger, its levers, and links, in such a manner that the same operation of the trigger which raises and locks the breech releases the hammer and causes the discharge of the load. Under the rear end of the barrel, and in a line with the center of radiation of the breech, and within a chamber formed for the purpose, I place a cylinder with hollowed flanges for receiving the magazine of cartridges. This cylinder is so arranged with springs, catches, and ratchets, in connection with the vibrating breech, that every complete vibration of the latter caused by the operation of the trigger and its connections carries round the cartridges contained in the chamber, so that when it is requisite to furnish the chamber of the breech with a new load one of the cartridges may be always opposite to an orifice in the magazine which coincides with the chamber of the breech when the latter is turned down from the barrel. In order to push each successive cartridge home into the breech, I make use of a ramrod connected to a sliding rod, which passes through the above-mentioned cylinder, and through the center of vibration of the breech toward the stock, where it terminates in a projection within reach of the operator.

Near the projection, and to the same sliding rod, I attach a second rod, which is arranged to slide in a small cylinder secured to the gun in such a manner as to be central with the nipple on the breech when the latter is down. This small cylinder communicates with a reservoir of caps in such a manner that the caps drop one by one into the cylinder, and are pushed onto the nipple by the rod when required.

The whole is so arranged and constructed that, first, by a slight pull of the trigger the breech may be brought down from the barrel; second, by moving the sliding rod rapidly backward and forward the breech may be loaded and capped; and, third, by pulling the trigger back its entire distance the breech may be raised to the barrel, there locked, and the hammer brought down so as to explode the cartridge. Thus the operator, by three movements of his hand, may discharge one load, and by repeating these movements as many loads as there are in the magazine without removing the fire-arm from the shoulder. The fire-arm shown in the drawings is calculated for seven cartridges, and this number can easily be discharged in one minute.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, and in which the same letters of reference allude to similar parts throughout the several views, Figure 1 is a longitudinal section of sufficient of a rifle to show my improvements. Fig. 2 is a view of the side contrary to that shown in Fig. 1, with part in section. Fig. 3 is a transverse section on the line 1 2, Fig. 2, and looking from the stock toward the barrel. Fig. 4 is a transverse section on the line 3 4, Fig. 1, showing the disposal of the cartridges in the magazine. Fig. 5 is a transverse section on the line 5 6, Fig. 2, looking from the stock toward the barrel, and showing the vibrating breech in its different positions. Fig. 6 is a transverse section on the line 7 8, Fig. 1, showing the mode of admitting the cartridges to the magazine. Fig. 7 is a sectional plan on the line 9 10, Fig. 1.

A is part of the wooden stock of the rifle;

B, a portion of the barrel. These are connected together by the casing G, one end of which extends along the under side of the stock A, and is secured thereto by screws in the ordinary manner. In the other is formed the magazine *b* for receiving the cartridges, and this is secured to the barrel B. C is the vibrating breech, which has circular projections *a* and *a'*, which turn easily in the casing G in such a manner that the breech (by apparatus hereinafter described) may have the limited vibration shown in red lines, Fig. 5, imparted to it. The bore of the breech C, when in its elevated position, coincides with the bore of the barrel C', the end of the former being in close contact with that of the latter. When the breech is down, however, as shown in red lines, Fig. 5, its bore coincides with an orifice, *x*, in the magazine *b*. (See Figs. 5 and 7.) The radial breech C is furnished with a screw-plug, *c*, on the inside of which is a projection, *d*, which is of the form of a tube, with part of its circumference cut away, as seen in dotted lines, Fig. 7. In a recess on the outside of the plug *c* is situated the nipple *f*, having its orifice or touch-hole communicating with the tubular projection *d*.

H is a plate secured to the stock A, as well as to the casing G, and is bent up at *q* toward the breech, and has a lip overhanging the nipple to protect the operator from any flying particles of the exploding cap.

The extreme end of the projecting bearing *a'* of the vibrating breech C is square for the reception of the square eye of the lever I, (see Fig. 3,) and from the end of the latter projects the pin J, on the end of which the connection K is allowed to swivel. To the lower end of K is jointed the link L, having a projection, against which bears the point of the spring *m*, which is secured to the casing G, and has a tendency, through the lever I, to throw down the vibrating breech, as shown in red lines, Fig. 5, when not otherwise retained. The link L is jointed to the lever M, which turns loosely on the pin R in the casing G.

The lever M has a curved recess on the top for receiving a pin projecting from the lever *w* when the latter is brought down, as hereafter described. This lever W is also allowed to turn loosely on the pin R, and has on the opposite side a second projection, between which and the body of the lever the dog is allowed to move freely on a pin passing through both. (See Fig. 2.)

The end of the lever *w* is connected, by means of the link P, to the trigger N, the fulcrum of which is on a pin, 2, passing through the casing G. To the trigger, and near its fulcrum, is jointed the bridle *k*, acted upon by the hooked end of the spring *l*, which is secured to the casing G, and has a tendency to keep the trigger and its attachments in the position shown in Fig. 1.

S is the hammer, which is also allowed to vibrate on the pin R. The upper end of the hammer coincides with the nipple *f*, and its

lower end has a projection, to which is jointed the bridle *t*, acted upon by the hooked end of the spring *T* in such a manner as to force the upper end of the hammer toward the nipple when not otherwise retained.

The dog Q above alluded to bears by means of a spring with one of its points in a notch on the lower end of the hammer, the other end projecting in a contrary direction, for a purpose hereafter referred to.

Jointed to a pin on the inside of the casing G is the horizontal lever 4, the extreme end of which grips a projection, *v*, near the bottom of the hammer S. The lever 4 has also a projection, which in certain positions of the lock catches the lever I on the end *a'* of the vibrating breech C.

W is a cylinder having three flanges, with their edges cut into seven hollows for receiving the cartridges X in the magazine *b*. This cylinder has two springs, 5, with their points projecting in contrary directions, the point of one spring catching into the teeth of the ratchet-wheel *e*, cut on the end of the projecting bearing *a* of the vibrating breech C, and the point of the spring on the opposite side catching into the ratchet-teeth cut in the cross-piece 6 of the casing G, which forms the termination of the magazine. The cylinder W turns on the sliding rod V, the end of which is furnished with a cross-bar, Y, and the latter with a rod, Z, which passes through the magazine, and is central with the orifice *x* of the same. To the opposite end of the cross-bar is secured the plunger 7.

The sliding rod V passes directly through the center of the cylinder W, through the projections *a* and *a'* of the vibrating breech, through the lever I and the upper portion of the plate H, and terminates with a projection, 8, for the thumb of the operator. To this extreme end of the sliding rod is connected, by means of the cross-bar 9, the cap-plunger 10, which slides in the horizontal cylindrical portion 11 of the cap-reservoir 12. This cap-reservoir is divided into two compartments, each compartment being capable of holding four or more caps, as seen in Fig. 2.

In the cylindrical portion 11 is an orifice large enough to admit one cap at a time, and the reservoir is arranged to slide along the cylindrical portion, so that either of the said compartments may communicate with the orifice. A stop, 13, attached to the side of the reservoir, fits into notches on the cylindrical portion, and retains the reservoir when slid to the position required.

The top of the reservoir has a lid, 14, on opening which the interior is exposed, allowing the compartments to be replenished with caps. The magazine *b* is also furnished with a lid, *h*, for the purpose of admitting the cartridges X.

A cover, *g*, is secured in such a manner to the vibrating breech C that on the latter being elevated its enlarged end covers the orifice *x* of the magazine.

Operation: We will now suppose the operator to have just discharged one of the cartridges and is desirous of discharging in succession the six remaining in the magazine *b*. The lock and other apparatus of the fire-arm will be in the position shown in Fig. 1. The operator now gives the trigger a gentle pull, which, by means of the link *P*, pulls down the lever *w*, and with it the dog *Q*, the point of which, catching into the notch of the hammer *S*, withdraws the latter a slight distance only from the nipple *f*. This slight movement of the hammer, acting upon the lever 4 through the projection *u*, causes the said lever to be removed from contact with the lever *I*, which, through the action of the spring *m* on the link *L*, causes the said lever *I* to turn, and consequently throws down the vibrating breech *C* to the position shown in red lines, Fig. 5, when the bore of the barrel coincides with the orifice of the magazine.

The fire-arm is now in a proper position to be capped and loaded, and the operator, removing his hand from the trigger to the projection 8 on the sliding rod *V*, draws the latter toward the stock, and with it the rod *Z*, plunger 7, and cap-plunger 10. This causes *Z* to push from the magazine into the chamber of the breech through the orifice *x* one of the cartridges *X*. Now, before this cartridge can be discharged it is necessary that the paper covering should be partially torn away, in order to expose the powder in the neighborhood of the touch-hole. This is caused by the projecting tube *d*, a portion of which is cut away, as already remarked in reference to Fig. 7. This cutting away of a portion of the tubular projection causes a portion of the paper of the cartridge to be bent inward when the latter is pushed home into the chamber of the breech, and thereby prevents any portion of the paper of the cartridge from becoming detached and choking the touch-hole. The cartridge being now pushed home to its proper position within the breech, the operator slides the rod *V* back to its original position, and this movement causes the cap-rod 10 to push one of the caps (which had previously dropped from one of the compartments in the reservoir 12,) through the orifice above mentioned into the cylindrical portion 11, onto the nipple *f*. The operator now pulls the trigger back to its entire extent. This again draws down the lever *w*, the projection on which, catching the lever *M*, also draws down the latter, and, through the connections *L* and *K*, acting on the lever *I*, elevates the radial breech until its bore coincides with that of the barrel. The instant it has arrived at this position, as seen in Fig. 2, one point of the dog *Q* touches the bottom of the casing *G*, and thereby releases the other point from the notch on the hammer *S*, allowing the latter, through the action of the spring *T*, to be projected against the cap on the nipple *f*, causing the discharge of the cartridge.

It should be understood that simultaneously

with the explosion of the cap, or, more properly speaking, an instant before, the projection *U* on the hammer *S* has moved the horizontal lever 4 so that the projection on the latter comes in contact with lever *I*, thereby retaining the vibrating breech with its bore accurately central with that of the barrel during the explosion of the cartridge. Now, the elevating of the vibrating breech by the last movement of the trigger gave, through the teeth on the ratchet-wheel *e*, acting on the end of the spring 5 on the cylinder *W*, one-seventh of a revolution to the latter, which, through the hollows on its flanges, carries *l* round the whole of the cartridges remaining in the magazine a sufficient distance for the cartridge next to that already discharged to take its place, so as to coincide with the orifice *x* of the magazine.

By means of the spring on the opposite side of the cylinder *W* catching with its point into the ratchet-teeth cut into the cross-bar 6 of the magazine, the cylinder is prevented from turning back on the return movement or dropping down of the vibrating breech *C*.

One of the cartridges having been discharged, the operator gives the trigger a slight pull, causing the vibrating breech to drop as before, operates the sliding rod *V*, which caps the nipple and inserts another cartridge into the chamber of the breech, again pulls back the trigger to its utmost extent, and so discharges the second cartridge. This is continued until the whole of the cartridges contained in the magazine are successively discharged.

It now remains to replenish the magazine. This I accomplish by opening the door *h*, through which I put one cartridge at a time. When one is inserted I draw back the rod *V* and return it again—a movement which causes the plunger 7 to drive the cartridge toward the magazine. I then pull the trigger slightly, as described above, so as to allow the vibrating breech to fall, and then, by the hand and without disturbing the trigger further, I again raise the breech until it reaches its most elevated position. This gives sufficient movement to the cylinder *W* to make room for a second cartridge; and this operation is repeated until the whole magazine is full, as before.

The magazine being now replenished, I open the lid and fill the compartments of the reservoir 12 with the requisite number of caps, and, again closing the lid, the fire-arm is now ready for discharging a succession of cartridges, as before.

Having now described the construction and operation of my invention, I wish it to be understood that I do not desire to lay claim or confine myself to the exact process herein described of inserting the cartridges into the magazine, or to the exact shape shown of the casing *G*, or to the number of cartridges or caps contained in their respective reservoirs, as these features may be altered to suit the size and nature of the fire-arm. Neither do I

desire to claim the use of a laterally-radiating breech, as such is claimed in the patent of W. W. Hubbel, July 1, 1844. Neither do I wish to claim, exclusively, the combining of the hammer with the laterally-swinging chamber for the purpose of effecting the simultaneous opening of the chamber and cocking of the hammer; but

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

1. The trigger N, with its spring *l*, link P, lever *w*, with its dog Q and projection *v*, the hammer S, with its notch for receiving the dog, its projection *v*, and spring T, the lever 4, link L, with its spring *m*, lever M, link K, and lever I, or the equivalents to the above, in combination with the vibrating breech C, the whole being constructed and arranged substantially in the manner herein set forth, for the purpose of imparting to the said breech the required lateral vibrating movement, retaining the same when required, and operating the hammer so as to discharge the load by simply operating the trigger only.

2. The magazine *b*, containing the cylinder W, with its hollowed flanges and spring-catches 5, in combination with the ratchet-teeth on the cross-piece 6 and the ratchet-wheel *e* on the end of a vibrating breech, so that the movements of the latter may cause the said cylinder to carry round in succession the cartridges ready for insertion into the chamber of the breech.

3. The sliding rod V, with its rod Z and projection 8, for the purpose of allowing the operator a ready means of inserting the cartridges into the chamber.

4. The cap-reservoir 12, with the cylinder 11, and its orifice for receiving the caps, in combination with the rod 10, arranged substantially as herein shown, for the purpose of readily placing the caps on the nipple of the breech.

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Witnesses:

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