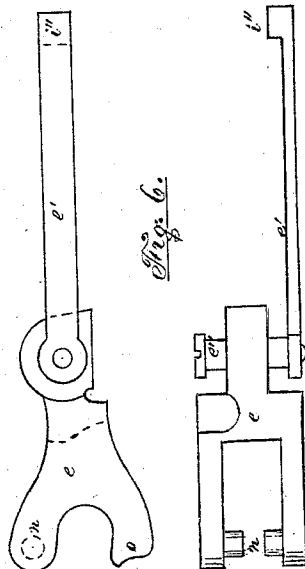
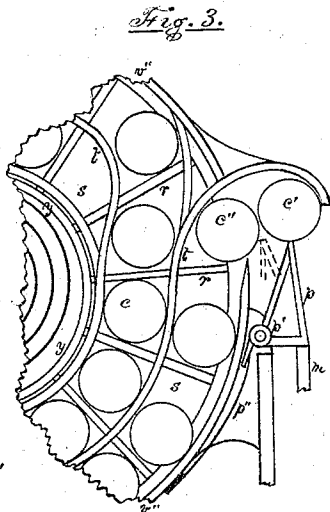
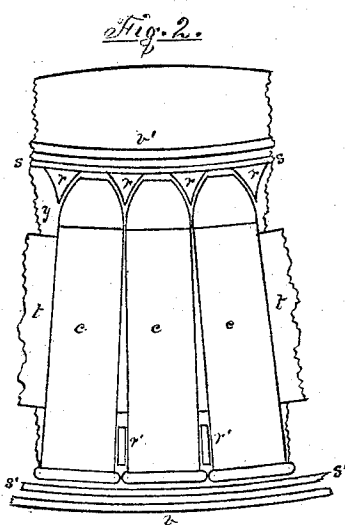
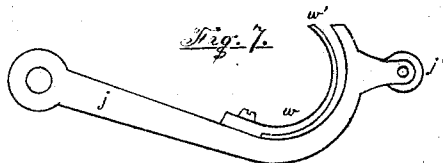
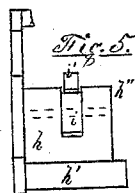
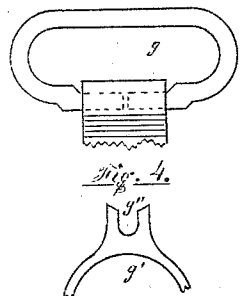
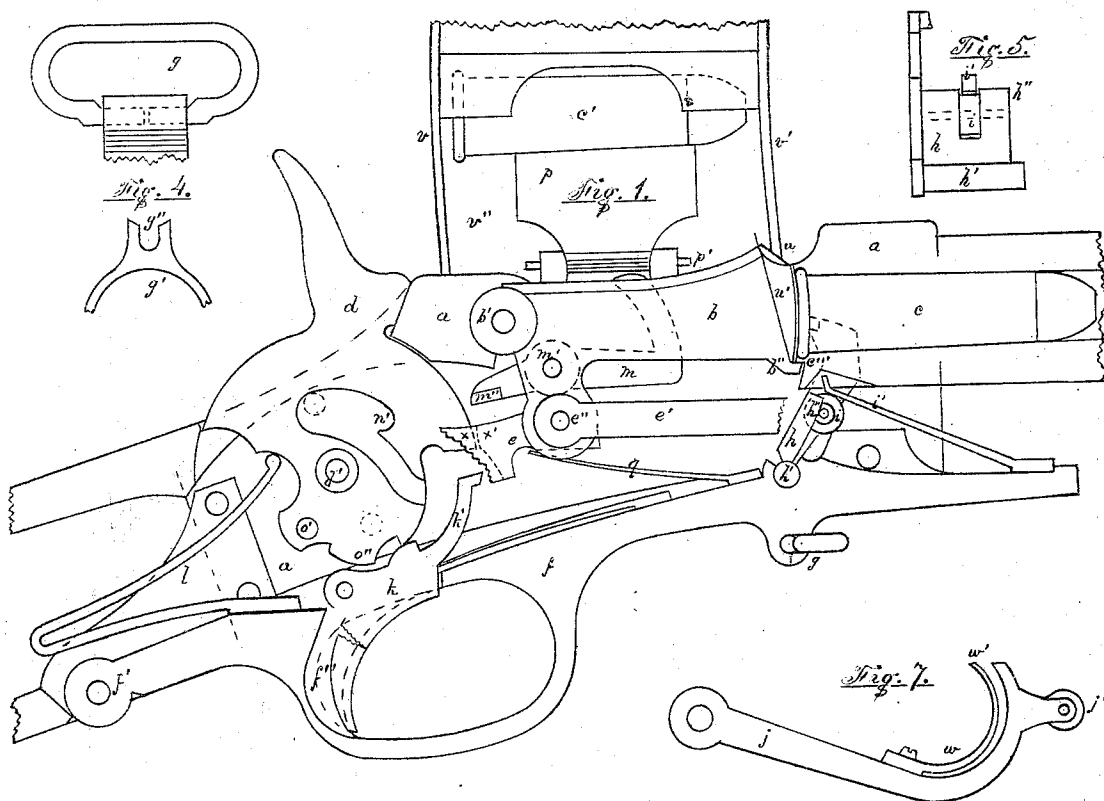


WILLIAM H. ELLIOT.
 Improvement in Breech-Loading Fire-Arms.
 No. 125,127. Patented April 2, 1872.



Witness
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UNITED STATES PATENT OFFICE.

WILLIAM H. ELLIOT, OF NEW YORK, N. Y.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 125,127, dated April 2, 1872.

To all whom it may concern:

Be it known that I, WM. H. ELLIOT, of the city, county, and State of New York, have invented a new and Improved Magazine Fire-Arm; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Similar letters of reference indicate the same devices in all the figures.

To enable others skilled in the arts to comprehend, make, and use my invention, I will proceed to describe its nature, construction, and operation.

The nature of my invention consists in several novel features, the principal of which are: First, in providing a tripping device moved by the operating-lever of the arm, which shall act at the proper moment upon the stop of a detachable magazine. Second, in the combination of the tripper with the breech-block, so that it may at the proper moment be brought within reach of the operating lever or hammer. Third, in the combination of the retractor with the double pawl by means of an auxiliary pawl. Fourth, in the combination of a roller with the retractor and its spring, so as to produce a more perfect result. Fifth, in a certain arrangement and combination of the half-cock or safety-notch on the tumbler, the trigger, and a recess in the rear part of the guard to prevent accidents in unloading the arm. Sixth, in the construction of the radial chambers of the magazine, so as to prevent friction of the cartridges against the outer case.

Figure 1 is a vertical section of my improved arm, showing the limb-work in elevation; also an elevation of the mouth or outlet of the magazine. Fig. 2 is an elevation of a portion of the interior of my improved magazine. Fig. 3 is a horizontal section of a portion of the same. Fig. 4 is an elevation of a swivel-loop and swivel-base. Fig. 5 is an elevation of a retractor. Fig. 6 is an elevation and a plan of a double pawl and an auxiliary pawl. Fig. 7 is an elevation of a retractor and auxiliary pawl combined in one piece.

a, receiver or frame of the arm; *b*, breech-block; *b'*, pivot of the same; *b''*, stop-lip and valve; *c*, *c'*, and *c''*, cartridges; *c'''*, shoulder to receive the stop-lip; *d*, hammer; *d'*, pivot

of the same; *e*, double pawl; *e'*, auxiliary pawl; *e''*, pivot joining them together and to the breech-block; *f*, guard-strap and guard; *f'*, joint of the same; *f''*, recess in rear-part of the guard; *g*, swivel-loop and swivel-base; *g'*, swivel-base attached to a band; *g''*, cut in the top of the base for the reception of the loop; *h*, retractor; *h'*, joint of the same; *h''*, shoulder upon which the auxiliary pawl takes hold; *i*, roller on the retractor; *i'*, spring of the same; *i''*, catch on pawl *e'*, which takes hold on shoulder *h''*; *j*, auxiliary pawl and retractor combined; *j'*, roller of the same; *k*, trigger; *k'*, arm of the same, which reverses the action of the hammer or operating-lever; *l*, lower tang; *m*, tripper; *m'*, pivot of same; *m''*, point upon which the hammer acts; *n*, catch on double pawl for opening the chamber; *n'*, notch in side of the hammer for catch *n*; *o*, catch on double pawl for closing chamber; *o'*, notch or pin on side of the hammer for catch *o*; *p*, stop of the magazine; *p'*, hinge of same; *p''*, spring of same; *q*, double pawl spring; *r* and *r'*, radial partitions; *s* and *s'*, revolving plates covering the end of the cartridges; *t*, circular or scroll partitions; *u*, bevel on the forward end of the breech-block for forcing the cartridges home in the chamber; *u'*, recess for the escape of gas; *v*, *v'*, *v''*, convex plate, concave plate, and band surrounding the magazine, all forming its outer case; *w*, spring of retractor *j*; *w'*, point of the same which acts upon the cartridge-case to retract it; *x*, nose of the hammer; *x'*, stop-shoulder and hammer-rest; *y*, hub of the magazine.

My improvements refer particularly to the arm and magazine invented by myself and protected by patents issued to me on the following dates—viz., December 13, 1870, February 14, 1871, May 9, 1871, September 12, 1871, and December 5, 1871—and for the better understanding of this specification and drawing I make special reference to the above-mentioned patents.

The operation of my improved magazine-arm is as follows: Premising that it has just been fired, on the first backward movement of the hammer the catches *n* take hold on notches *n'*, drawing the double pawl backward and the breech-block down to open the chamber, and also drawing the auxiliary pawl *e'* back. At the moment the chamber is open sufficiently

for the shell to start, the catch i'' takes hold on the shoulder h'' and carries the retractor and shell back until the latter is free from the chamber, when the roller i passes partly out from under the end of the spring i' . This gives to the retractor a sudden movement backward, which throws the shell completely out of the arm. By the downward movement of the breech-block to open the chamber the tripper p is carried back sufficiently so that when the hammer makes its first forward sweep its nose x comes down upon the tripper at m'' , throwing up its forward end against the stop-lever p , carrying the upper end of the same from under cartridge c' against cartridge c'' , as shown by dotted lines, when cartridge c' immediately drops into the arm and is pushed into the chamber by the thumb. As the cartridge passes into the chamber its head catches the point of the retractor, carrying it with its roller i back under spring i' , by which movement the power of the spring becomes neutralized and has no tendency to force the cartridge in either direction. On the second backward movement of the hammer the catches o take hold on notches or pins o' , carrying the double pawl forward, the breech-block upward, and the hammer to full cock, when the arm may be fired in the usual way. This completes the operation of loading and firing. In pushing the cartridge into the chamber by the thumb, if it be accidentally left out a little the bevel u will push it home when the breech-block rises. The spring g causes the double pawl to take notches n' or o' to open or close the chamber by its alternate bearing upon the pawl in front and rear of the pivot e'' , as described in two of the before-mentioned patents. The tripper m need not necessarily be in the form of a lever; its function is to communicate to the stop of the magazine the force of the hammer or operating lever of the arm, and the stop is so constructed and arranged that it may be operated by the tripper while the magazine is attached to the arm, or operated by the fingers while detached from the arm, and neither device is in any way interfered with by separating the magazine from the arm.

By pivoting the tripper to the breech-block below the pivot b' it is carried backward and forward by the breech-block, and is thereby brought, at the proper moment during the manipulation of the arm, under the nose of the hammer. For the purpose of conveying the force of the hammer to the retractor more directly I connect the double pawl with the retractor by means of the auxiliary pawl e' . By this means of communicating the force of the hammer to the retractor the latter device is less liable to suffer the loss of motion from wearing of joints. As shown in my former patents on this arm, and as herein shown, the double pawl e makes a backward movement at each alternate backward movement of the hammer; and, by connecting the retractor to the double pawl by means of the auxiliary pawl e' , I obtain a backward movement of the retractor at each

alternate backward movement of the hammer through a direct line of devices.

By the use of a roller between the retractor and its spring I produce a peculiar result. It may be seen by reference to Fig. 1 that the spring has its end bent upward over the roller, forming an obtuse angle. While the roller is under the straight part of the spring it has no tendency to force the retractor in either direction; but at the moment the chamber is open sufficiently for the shell to be thrown out the roller passes over the angle and runs up the bent portion of the spring, shooting the shell backward with great velocity.

By raising upon the tumbler a point at o'' , between the safety and full-cock notches, considerably higher than the safety-notch, when the hammer falls free it moves with such rapidity that the trigger is thrown completely over the safety-notch, whether the finger is upon it or not; but when the hammer is let down by the thumb the trigger has time to fall and catch the safety-notch.

The safety-notch is considerably higher than the full-cock notch, and these are arranged in such relation to each other and to the recess f'' that, when the point of the trigger is in the full-cock notch, the free end of it, as shown in Fig. 1, is sufficiently out of the recess to be operated upon by the finger; but when the point of the trigger is in the safety-notch, or resting on the tumbler, as shown in the same figure, the free end of the trigger is so far back in the recess that the finger cannot effect it, so that the hammer cannot be let down by the thumb past the safety-notch; nor can it be got down except by snapping in the usual way.

Fig. 7 shows a novel method of combining the auxiliary pawl, retractor, and spring. In this case the point w' of the spring w takes hold on the head of the shell. When the backward movement of the double pawl commences the spring w is depressed until it comes in contact with the unyielding portion of the retractor. At this moment the chamber is open sufficiently for the cartridge to start, and the movement becomes positive. When the breech-block falls low enough, so that the shell is released, the spring suddenly assumes the position shown in the drawing, throwing the shell out of the arm.

By removing each alternate radial partition from the magazine each chamber would hold two cartridges in the inner circle and three in the outer. This would add twenty-five per cent to the capacity of the magazine, and it would work nearly or quite as well.

The scroll-partition need not necessarily run entirely around between the two circles of cartridges. It may be very short, its principal function being to guide the outer circle of cartridges out through the mouth of the magazine, taking one cartridge from each chamber at each revolution. A magazine of a single circle of cartridges has been found to work practically and to contain about as many cartridges as it is convenient to hold out upon the arm

in off-hand shooting. A short scroll-partition hinged to the outer case at the mouth of the magazine, with a light spring to force its free end down upon the hub, would serve to throw out both circles of cartridges, one after the other. In this case one of the radial chambers should be so constructed as not to take in a cartridge in the inner circle, so that there may be one blank space to enable the scroll-partition to be changed from the outer to the inner circle.

A very convenient method of carrying my improved magazine cartridge-box would be to provide for it a strong leather box supported upon a shoulder-strap. This box should be of the same shape and just sufficiently large to contain the magazine; and its cover should open so as to expose the mouth of the same, so that it might be used as a cartridge-box without taking it out of its receptacle; but to use it as a magazine it would have to be taken out of its box and placed upon the arm.

Having described my improved magazine-arm, I desire to have secured to me by Letters Patent of the United States the following claims, viz.:

1. The combination of tripper *m* on the arm with stop *p* on detachable magazine, operating together substantially as described, whereby a fresh cartridge is dropped from the magazine into the arm at the proper moment.

2. The combination of tripper *m* with breech-block *b* and hammer or operating-lever *d*, substantially as set forth, whereby the tripper is brought within the reach of the hammer at each alternate backward movement.

3. The combination of the auxiliary pawl *e'* with the double pawl *e*, hammer *d*, and retractor *h*, when operating together as described, whereby the retractor is moved to discharge the empty shell by each alternate backward movement of the hammer.

4. The combination of roller *i* with retractor *h* and spring *i'*, when said spring is constructed as set forth, all operating substantially as described, whereby the force of the spring upon the retractor is rapidly increased to its maximum, and then remains uniform.

5. The half and full cock notches, where arranged as set forth, in combination with recess *f''*, substantially as described, whereby the hammer is prevented from being let down by the thumb upon firing-pin.

6. The stop-lip *b''* and recess *u'* in combination with breech-block *b*, whereby the escaping gas is directed out of the receiver, substantially as specified.

W. H. ELLIOT.

Witnesses:

C. L. OSGOOD,
F. C. SHEPARD.