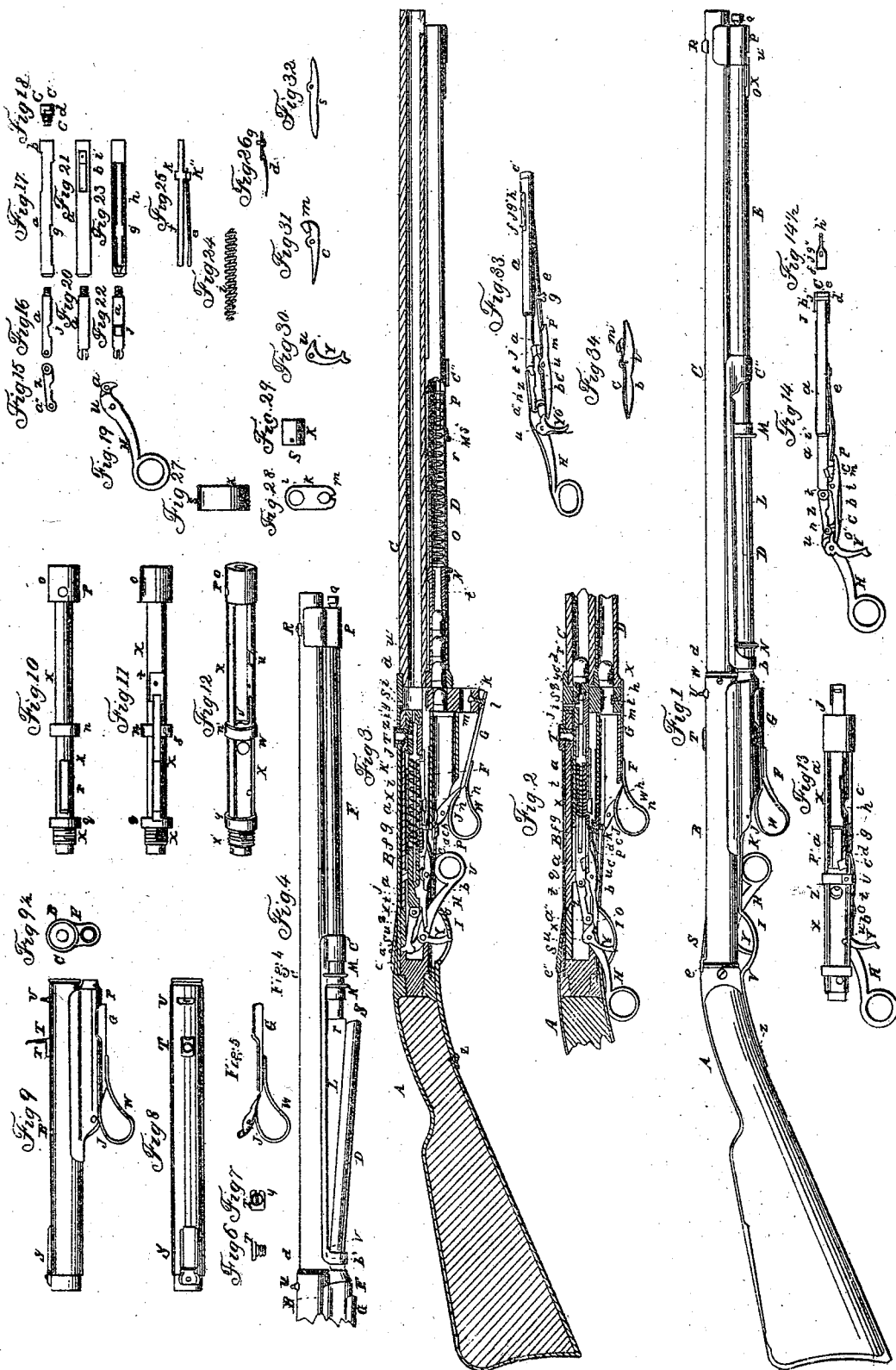


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COMBINED PISTON BREECH AND FIRING COCK REPEATING GUN.



# UNITED STATES PATENT OFFICE.

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## COMBINED PISTON-BREECH AND FIRING-COCK REPEATING-GUN.

Specification forming part of Letters Patent No. 6,663, dated August 21, 1849; patented in England, December 10, 1847.

### To all whom it may concern:

Be it known that I, WALTER HUNT, of the city, county, and State of New York, have invented a new and useful Improvement in the Construction of Fire-Arms, which I denominate "The Volition Repeater," and that the following is a full and faithful description of the same.

In the annexed drawings, which are on a scale of six inches to the foot, I have given in Figure 1 an external side view of my said improved gun, which, in length, weight, and caliber nearly corresponds to the United States rifle. Fig. 2 exhibits a vertical longitudinal cut section of the action or lock ready for pulling trigger, together with a portion of the ball-magazine and barrel, with a ball inserted at the breech. Fig. 3 exhibits a similar view of the whole gun, showing a correct profile of every part and member, external and internal, of which the same is composed, and arranged in their proper position, which I will now proceed to describe, with similar letters of reference to similar parts throughout all of the figures.

In the following description I have selected Fig. 3 as the most perfect expose of the internal arrangement of said gun, which is externally composed of the following principal parts, as shown in Fig. 1, viz: the butt A, lock-case B, barrel C, ball-tube or magazine D, spring or rod case E, bolster F, transfer-trigger G, loading-trigger H, guard I, transfer-trigger pin J, spring end of guard K, thimble-strap L, fixed thimbles  $b'$ ,  $c'$ , and P, sliding thimbles M N, fastening-spring O, head of ramrod Q, front sight, R, back sight, S, middle sight, U, priming-magazine T, fastening-back bolt V, set-screw W, discharging-trigger Y, and guard-screw Z'.

The lock-case and butt are screwed together at  $e'$ , and the barrel and lock-case at  $d''$ .

The internal arrangements of the lock, &c., are as follows. (See Figs. 3, 13, and 14, which latter is a dissected or detached side view of said lock, beginning with the charging-trigger H and the firing-trigger Y, which are suspended upon the pin  $u$ .) In Fig. 3 is shown the bottom end of said trigger H thrown forward. The upper end is hooked downward and connected by a rule-joint at  $a''$  to the rear end of the connecting-link Z, the front end of which

link is connected by a similar joint to the back end of the breech-piston  $a$  at  $t$ . Said piston is composed externally of three parts—viz., the tail  $a$ , the cylinder or spring-case  $a'$ , and breech-plug  $c'$ —which are screwed together at  $i''$  and  $j''$ , (see Fig. 14, five dissected side views, Figs. 16, 17, 18, and 19, with top and bottom views, Figs. 20, 21, 22, and 23.) Upon the surface of  $a'$ , near the front end, a notch is filed out, making a flattened surface at  $b'$ , upon which is placed a slider,  $j$ , made of sheet-steel, with the front and back ends bent upward the depth of the notch aforesaid, with a spring-tongue,  $h''$ , projecting forward. (See Fig. 14 $\frac{1}{2}$ .) The end of the tongue is bent in the shape of a U, which end, as the slider is moved back and forth, falls into the priming-hole  $i'$ , (see Fig. 2,) and forces the kernels of priming, which might otherwise remain in said hole, into the cavity below. The horizontal motion of said slider is restricted in its vibrations by the bottom of the priming-chamber T, which catches upon the flanges  $f''$  and  $g''$ .

The central part of said breech-piston  $a'$  contains the helical or coiled mainspring  $i$ , wound around the firing-punch  $f$ , one end of which spring bears against a collar on said punch at  $h'$ . Upon the bottom end of said collar is attached the detent-spring  $e$  by means of the flange on the same at  $h''$ . The back end of said mainspring bears against the forward end of the tail-pin  $a$ . (See Figs. 2 and 3, 24 and 25.) Along on the under side of said mainspring-case  $a'$  it is cut through to the internal cavity, in which longitudinal slot  $h'$  is an enlargement, at  $g'$ , (see Fig. 23,) through which the firing-punch  $f$  is inserted, and through which slot  $h'$  the flange  $h'$  is allowed to reciprocate, being acted upon by the attaching and detaching of the detent  $e$  to and from the detent-pin  $g$ , which motions are effected by the back-and-forth action of the trigger H and the breech-piston  $a'$ , as shown by their contrasted positions in cut sections, Figs. 2 and 3, and by pulling the firing-trigger Y, which, bearing down on the back end of the lever  $b$  at  $o''$ , lifts the end of said detent at  $p''$  from the detent-pin  $g$ , which pin is inserted up through a corresponding hole in the back part of said detent, thereby releasing the firing-punch  $f$ , which is impelled forward by the mainspring  $i$  through the tube into the rear end of the breech plug

or pin  $c'$  at  $q''$ , which is the firing-chamber of the priming.

In Fig. 3 a kernel of percussion-powder is shown as having dropped into the priming-hole  $i$  from the magazine T, which in Fig. 2 is brought forward past the end of the firing-punch  $f$  and deposited in the firing-chamber of the priming at  $q''$ , as aforesaid.

Fig. 31, letter  $c$ , gives a side view of an intermediate detent in said lock, which I call the "lock-lever," which is shown in the cut-section views, Figs. 2 and 3, and also in the detached view, Fig. 34, and combined view, Fig. 33. Its object is to fasten the breech-pin secure in the end of the barrel at the time of firing, which is effected by the impingement of the hooked upper end of the charging-trigger H upon the end of said lever at  $n''$ . It being centrally suspended upon the pin  $v$  the forward hook upon the end  $m''$  is forced up into the notch  $j'$ , cut in the under side of the tail-pin of the piston breech-pin  $a$ , (see Fig. 33,) thereby securing the same firmly in its place, as aforesaid.

I would remark that this is the only position in which the priming or gun can be discharged, because the flange  $m''$  on the front end of the lock-lever  $c$  prevents the front end of the lever  $b$  from raising the detent  $e$  from the pin  $g$  until the said flange is let up into the notch  $j'$ , as before described. (See Figs. 2, 3, 14, and 33.)

Figs. 10, 11, and 12 give a top, bottom, and side view of the lock-frame X, which is cast in one piece, and in which is placed the whole action of the lock, as shown in Fig. 13, side view, the whole of which is placed in the lock-case B. (See detached side and top views, Figs. 8 and 9, end view, Fig. 9½, and cut sections 2 and 3.)

Upon the front bottom side of said lock-case B is an enlargement or bolster, which supports the transfer-trigger G upon the pin J, and up through an opening in which, at its front end, is inserted the transfer-tube  $k$ , (see top, side, and end views of said tube in Figs. 27, 28, and 29, and vertical side cut sections of the same, Figs. 2 and 3,) where the connection of said trigger G and tube  $k$  is shown at  $l$ , which connection is made by the T-hook fixed in the front end of said trigger G, and made to swivel through an opening in the bottom of said tube  $k$ , by which it is thereby loosely connected by a swivel-joint, as aforesaid.

The office of said trigger and tube is to transfer the cartridges from the ball-magazine D (see cut section, Fig. 3) to a line in front of the breech-pin at  $c'$ , in order that by pulling the charging-trigger H it may be forced into the breech of the barrel ready for discharging, as shown in cut section, Fig. 2, at  $r''$ .

The motion of said tube and trigger is effected by the left hand, which supports the gun at F G, where, by a slight upward pressure of the ball of the hand upon the bow of the trigger, at  $w$ , it is placed in the position to receive the cartridge, as in Fig. 3, when, by pressing

the palm upward at G, the tube is raised and the ball carried in front of the breech-pin, as before described, and shown in Fig. 2, in which position said trigger ordinarily remains at rest, being partially held by the pressure of the guard-spring upon the heel of said transfer-trigger at K.

I will now proceed to describe the ball tube or magazine D and spring-case E, which are supported in the thimbles  $b''$ ,  $c''$ , and P in the ordinary place of the ramrod. By drawing the thimble N toward the muzzle of the gun till both it and thimble M have passed the joint  $s'$  the spring  $r$  catches and holds thimble N, and as that is attached through a slot made the length of its play in the side of the tube D next the barrel C to the follower  $t''$ , on which the lower end of the spring O bears, said spring is also drawn back and held and the end of the tube D' released, as shown in Fig. 4. The ball-tube D is then separated from the spring-case E at  $s''$ , and thrown outward by the spring  $v''$  ready for filling with cartridges from cases prepared for the purpose containing, say, twelve, more or less. The magazine being filled is returned in a line with the spring and ramrod-tube, where it bears upon the check-spring  $r$  and releases the thimble N, attached to the follower  $t''$ , which last, being operated upon by the coil-spring  $o$ , is forced down upon the cartridges, driving the bottom one into the transferring-tube  $k$  whenever it is brought into a straight line, as before described, and shown in Fig. 3. Said ball-tube is held in its position by sliding the thimble M over the joint  $s''$  after the thimble N has been let down, as aforesaid. (See Figs. 1 and 3.)

O\* is a small spring in the upper end of the spring-tube E, designed to fasten the same by means of a hook fitted into a gap in the thimble P at  $w''$ .

Fig. 26, letter  $d$ , is a spring secured to the under side of the lock-frame by means of the detent screw or pin  $g$ , (see Fig. 11, at  $t'$ ,) which spring bears upward upon the lock and lifting levers  $b$  and  $c$ , keeping them in their positions for the action of the triggers H and Y.

The priming-magazine is a small thimble or cup with a hinged cap, T, having a slot cut through its bottom at  $y'$ . (See Figs. 6 and 7, which are side and bottom views in Figs. 2 and 3, cut-section views.) Said magazine is shown as screwed down through the lock case and frame, directly over the priming-hole  $i'$  in the breech-pin  $a'$ , when the same is drawn back ready for charging, as in Fig. 3.

The cartridges designed to be used in this gun are those recently invented by me, for which an application for Letters Patent has been made at the United States Patent Office.

Having given a full description of my said improved gun, I will now proceed to describe its mode of using and the action of its parts when in operation.

The ball or cartridge magazine being charged as before described, and the gun brought to a firing position, the left hand clasping the gun

around the transferring-lever and bolster at F G, the transfer-tube *k* is brought down by the ball of the same hand bearing on the bow at *w*, as before stated, and as shown in Fig. 3. A cartridge having been forced into the transfer-tube by the spring O is thus carried up in a range with the breech-pin *a'*, which is now thrown forward by drawing back the charging-trigger H with the second finger of the right hand, which at the same time clasps the waist of the gun at A, (see Fig. 2,) by which means the cartridge-ball is forced home into the breech of the barrel. At the same time a kernel of priming is carried from the bottom of the primer T and dropped in the cavity in front of the firing-punch *f*. Simultaneously the lock-lever *e* enters the notch *j'*, being forced up by the point of the trigger H, which presses down its back end, as before described, and shown in Fig. 2.

The gun being now loaded, primed, and cocked, is fired by pulling the trigger Y, which forces down the back end of the lifting or detaching lever at *o''*, the front end of which lifts the rear of the detent-spring *e* from the pin *g*, when the firing-punch is suddenly thrown forward by the coil-spring *i*, which explodes the percussion in the chamber aforesaid, the flame from which passes through the central hole, *y*, in the breech-plug *e'*, perforating the tissue in the center of the cartridge, and discharges the gun, when the triggers H and G are again returned to their former position, as in Fig. 3,

and the operation is repeated until the magazine is exhausted, when it is replenished, as before described, and shown in Fig. 4.

The priming-magazine may safely contain from fifty to one hundred primings, and the ball-magazine may extend the whole length of the barrel and contain some two dozen cartridges, in which case it would be necessary to force them down by hand or some other arrangement; but by separating and charging the lower half of the spring-case on my plan it is advantageously charged with twelve balls from a case before mentioned, which I consider of sufficient length for convenience or utility.

What I specifically claim as new in the above-described gun, and desire to secure by Letters Patent, is—

1. The construction of a hollow sliding or piston breech-pin, which is operated by a lever in loading and securing the charge in the breech of the gun, which breech-pin, in addition to the above characteristic, contains or has attached to it the mainspring, firing cock or punch, and firing-chamber of the priming.

2. I also claim the plan of transferring the priming from the fixed magazine to the firing-chamber in or by means of the said sliding breech-pin, as above set forth and described.

WALTER HUNT.

Witnesses:

GEO. G. SICKLES,  
ELISHA BLOOMER.