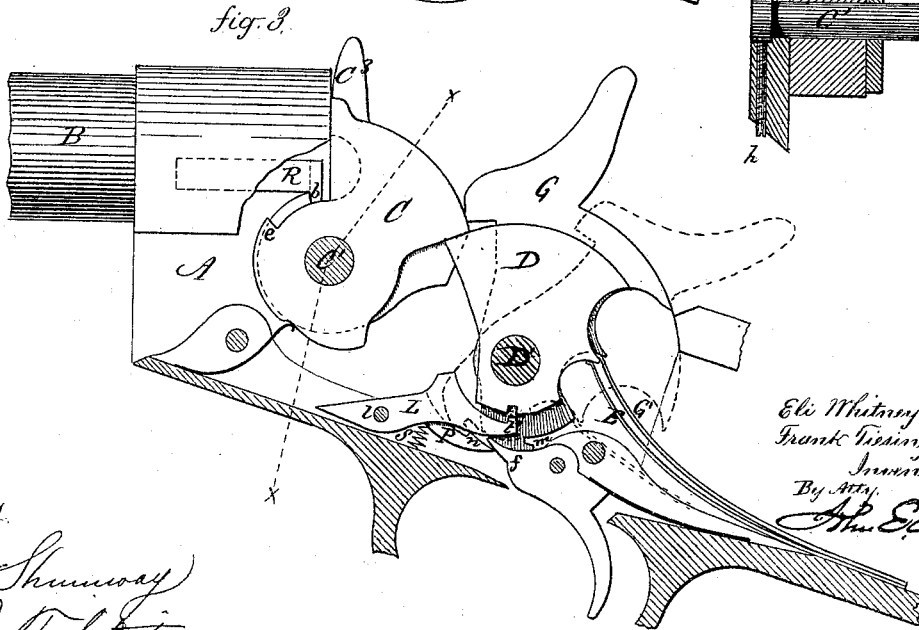
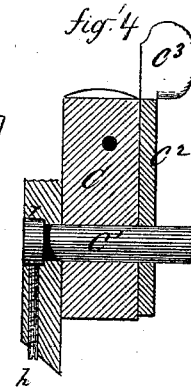
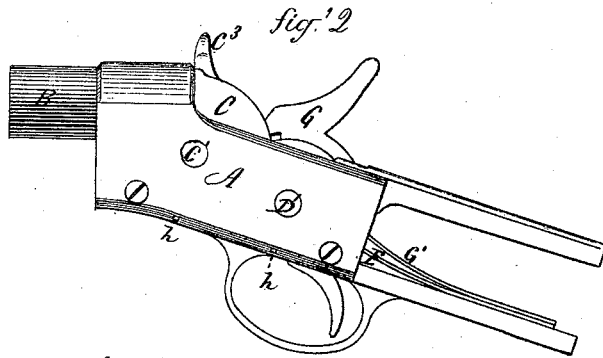
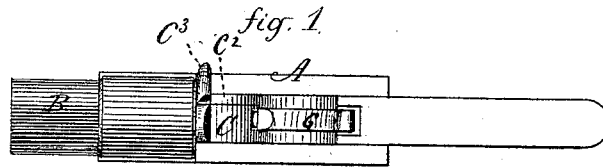


E. WHITNEY & F. TIESING.

Improvement in Breech-Loading Fire-Arms.

No. 129,637.

Patented July 16, 1872.



Witnessed.
J. H. Shumway
A. J. Tubbitz

Eli Whitney &
Frank Tiesing
 Inventors
 By Atty.
A. P. Cook

E. WHITNEY & F. TIESING.

Improvement in Breech-Loading Fire-Arms.

No. 129,637.

Patented July 16, 1872.

fig. 5

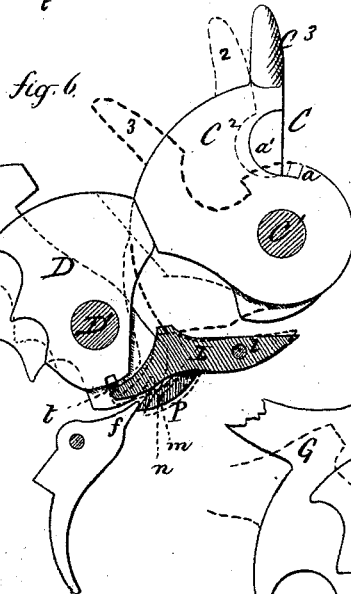
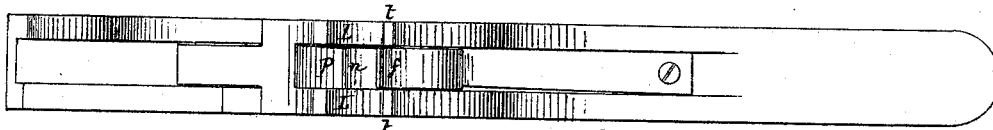


fig. 8^a

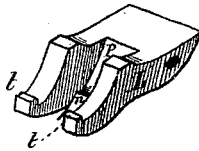


fig. 8

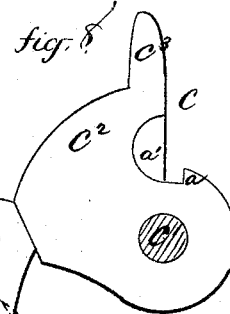
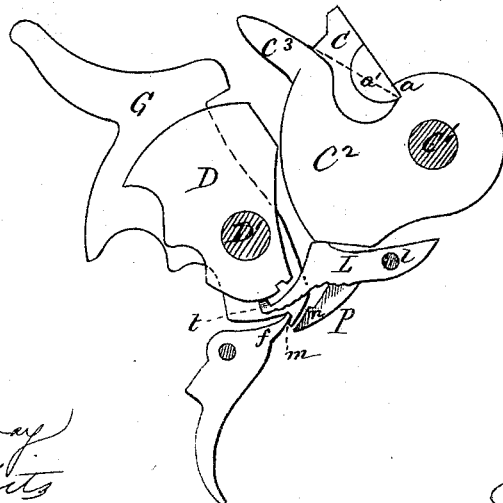


fig. 7



Witnessed.

J. W. Shumway
A. J. Tibbitts

Eli Whitney &
Frank Tiesing
 Inventors.

By Atty.
Wm. E. East

E. WHITNEY & F. TIESING.

Improvement in Breech-Loading Fire-Arms.

No. 129,637.

Patented July 16, 1872.

fig. 9

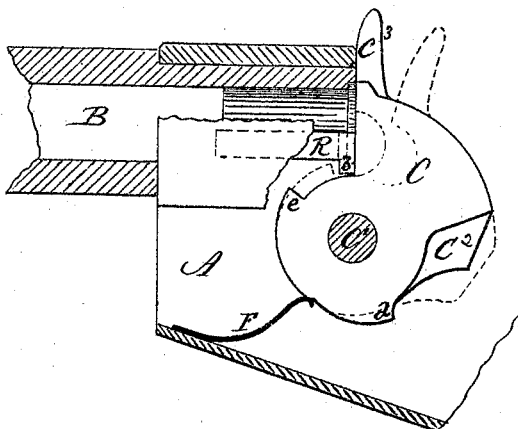
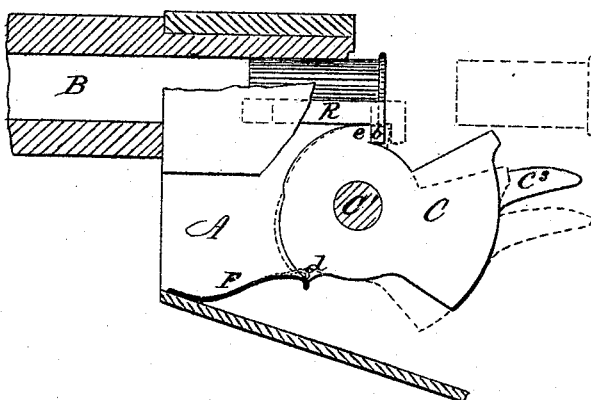


fig. 10



Witnesses.

J. H. Murray
A. J. Tishita

E. Whitney &
Frank Tiesing
Inventors.
By Atty.

Wm. E. Gale

UNITED STATES PATENT OFFICE.

ELI WHITNEY AND FRANK TIESING, OF NEW HAVEN, CONNECTICUT; SAID TIESING ASSIGNS HIS RIGHT TO SAID WHITNEY.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 129,637, dated July 16, 1872.

To all whom it may concern:

Be it known that we, ELI WHITNEY and FRANK TIESING, both of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Breech-Loading Fire-Arms; and we do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification, and represents, in—

Figure 1, a top view; Fig. 2, a side view; Fig. 3, a longitudinal sectional view; Fig. 4, a transverse section on line xx through the breech-block, looking forward; Fig. 5, a top view of the trigger-guard plate; and in Figs. 6, 7, 8, 8^a, 9, and 10, detached views. The first two figures half size, the remainder full size.

This invention relates to an improvement in that class of breech-loading fire-arms in which a breech-block is arranged upon a pivot to swing back and down to open the breech, and locked when returned to close the breech by means of a cam, which falls in the rear of the breech-block; and the invention consists, first, in the mechanism, as hereinafter described, for operating the said cam; second, in a cartridge-retractor, arranged longitudinally in the barrel, actuated by the breech-block directly, so that the last part of the movement or fall of the breech-block will give the said retractor a sudden throw, to eject the shell from the arm.

A is the frame of the arm, of the usual form, and to which the barrel B is attached in the usual manner, so as to be open at the breech. C is the breech-block, hung upon a pivot, C¹, the said pivot being transverse to the axis of the barrel, and in line, or nearly so, with the end of the arm, substantially as in other arms having this class of breech-block. D is the cam, hung upon a pivot, D', parallel to the pivot C¹; this cam and the breech-block being formed relatively to each other so that when the breech-block is thrown up, as in Fig. 3, the cam D will be forced into the rear of the breech-piece by means of the spring E. Upon the same pivot with the breech-block a lever, C², is arranged, having a thumb-piece, C³, projecting up, by means of which the said lever may be operated. This lever is formed rela-

tively to the said cam, as seen in Fig. 6, so that as the said lever is pressed back to the first position, as denoted in broken lines 2, it will have thrown the cam D back to the position denoted in broken lines, Fig. 6, and also seen in Fig. 7. The cam is thus moved from beneath the breech-block; then a shoulder, a , on the lever strikes a projection, a' , on the breech-block; the lever, then pressed further back, to the position denoted in broken lines 3, Fig. 6, and also seen in Fig. 7, carries with it the breech-block C. Arrived at that point, Fig. 7, which is the extreme movement of the lever, and as seen in Fig. 10, a spring, F, bears upon the under side of the breech-block, where, at that point, a fall-off, d , is formed, which coming upon and pressed by the said spring, a sudden throw is given to the breech-block by the spring at this fall-off, which carries the breech-block down to its extreme point, as denoted in broken lines, Figs. 7 and 10. The object of this sudden movement will be more fully hereafter explained. G is the hammer, arranged through a slot in the cam, as seen in Fig. 1, upon the same pivot as the cam, the cam and hammer both turning upon the same center. Before throwing back the lever C² the hammer must be thrown into the position of full-cock, as seen in Fig. 3; also seen in Figs. 6 and 7. Beneath the hammer and breech-block a lever, L, is hung upon a pivot, l , the said lever shown detached in Fig. 8^a. The lever L is divided or forked, and between the fork a tongue, P, is arranged, as a part of the said lever, and this tongue has a notch, n , and is arranged in such relative position to the hammer that when the hammer is drawn back to full-cock a projection, m , on the hammer will catch onto the said notch, as seen in Fig. 6, and will there be held until the lever C² is drawn down so as to strike and depress the lever L, as seen in Fig. 7, which removes the tongue P so as to disengage the hammer and allow the hammer to escape, when, by the action of the mainspring G', the hammer flies up until the notch m catches upon the sear f , the notch m being recessed so as to lock onto the sear and prevent its removal by means of the trigger only, as in the usual half-cock. The breech down, the cartridge is inserted in the usual manner, the breech returned by means of the lever C², the cam falls into the

rear of the breech-piece, as before described, and, when fully home, a projection, *t*, on the end of the lever L falls into a corresponding notch in the cam, thus locking the cam in that position. As the parts now stand, as seen in Fig. 8, the hammer is locked at half-cock, and the cam and breech-piece also locked in their closed position; hence the arm cannot be accidentally discharged; neither can the breech-piece be removed from the closed position. Beneath the lever L a suitable spring, S, is arranged to bear up the said lever. The full-cocking of the hammer may be done by the sear without the use of the notch *n*; but in any case the hammer should so act upon the lever L that when the hammer is thrown down it will release the cam D from the control of said lever. To discharge the arm draw the hammer back to full-cock, where it again engages with the notch *n* on the tongue P, the end of the said tongue extending back beneath the sear, so that when the trigger is pulled the sear will press down the tongue P, as denoted in Figs. 3 and 6, releasing the hammer from the notch *n*. It then flies forward to strike the firing-pin in the usual manner, the lower surface of the hammer bearing upon the sear so as to disconnect the lever L from the cam, leaving the arm in position for another operation. R is the retractor for ejecting the cartridge, and is in the form of a slide, working longitudinally in a line parallel with the bore of the barrel, and from which a projection, *b*, extends down, so that a shoulder, *e*, on the breech-block, as it moves from the position in Fig. 9 to that in Fig. 10, draws the slide from the barrel, the shoulder being located, as shown in Fig. 9, so that the breech-block may have been turned partially away from the barrel before the retractor be-

gins its movement. This retractor lies forward of the rim of the shell so as to bear against the rim and force the shell from the barrel as the retractor is drawn out. The movement of the breech-block and retractor is regular until arrived at the position in Fig. 10, when the spring F, acting as before described, imparts a sudden accelerated movement to the breech-block, and through that to the retractor, which throws the shell with sufficient force to eject it free from the arm. In order to secure the pivots C¹ D' in place so that they cannot be accidentally removed we form them with an annular groove, *r*, around the head, as seen in Fig. 4, the said groove coming within the frame; and from one edge, by preference the lower edge of the frame, we insert a screw, *h*, the point of which enters the said groove and prevents the removal of the pivot until the screw has been partially withdrawn.

We claim as our invention—

1. The combination of the breech-piece C, its lever C², the cam D, lever L, and hammer G, when combined to operate substantially as described, and with or without the tongue P on the lever L.

2. The combination, with the breech-piece C, of the lever C², retractor-slide R, and an accelerating-spring, constructed and arranged to operate substantially as described, whereby the breech-piece is operated and the suddenly-accelerated movement of the same is imparted to the retractor to eject the shell, as set forth.

ELI WHITNEY.
FRANK TIESING.

Witnesses:

A. J. TIBBITS,
J. H. SHUMWAY.