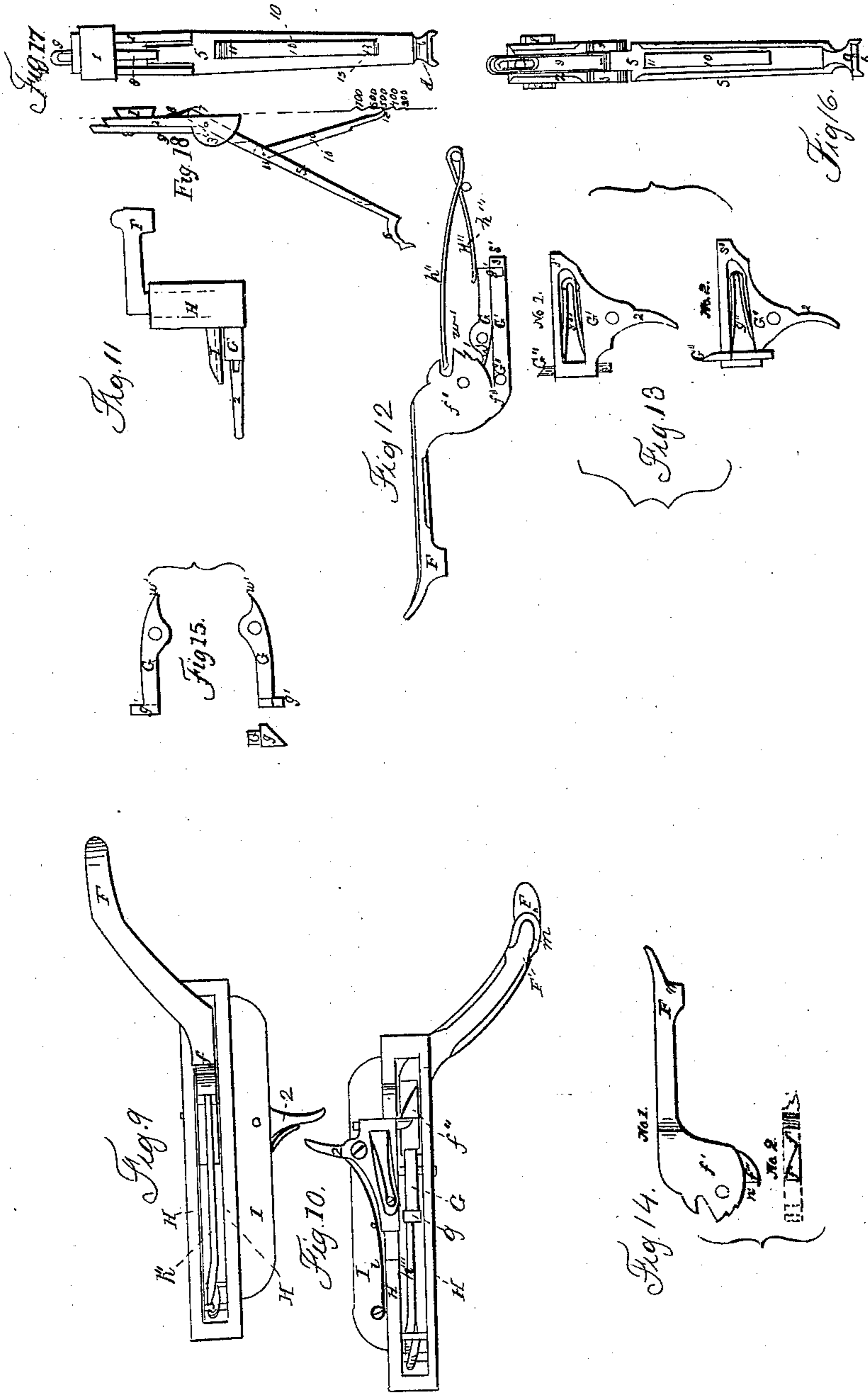


J. OLIPHANT.

Breech-Loading Fire-Arm.

No. 37,407.

Patented Jan. 13, 1863.



Witnesses,
J. M. Heeshead
Godfrey Cramer

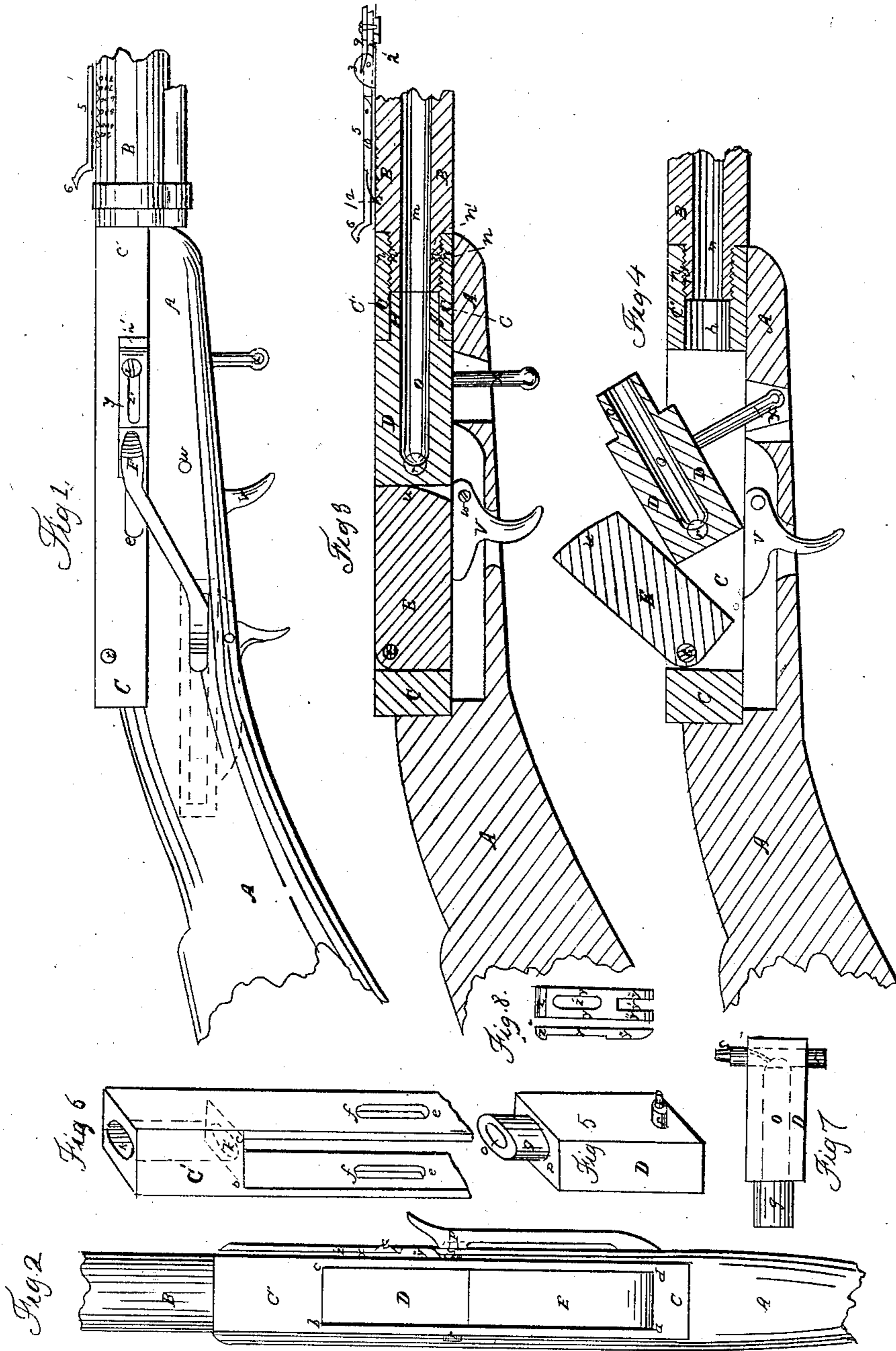
Inventor,
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Inventor *Jno Oliphant*

UNITED STATES PATENT OFFICE.

JOHN OLIPHANT, OF UNIONTOWN, PENNSYLVANIA.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 37,407, dated January 13, 1863.

To all whom it may concern:

Be it known that I, JOHN OLIPHANT, of Uniontown, Fayette county, and State of Pennsylvania, have invented a new and Improved Fire-Arm; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in so constructing the breech portion and the lock of the gun as to insure great rapidity in loading and discharging the same, as well as in securing the full effective force of the powder, by avoiding the leakage at the joint formed by the abutting together of the charge-chamber and the barrel, common to the present method of constructing breech-loading fire-arms.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, having reference to the accompanying drawings, in which—

Figure 1 represents a side elevation of the gun; Fig. 2, a plan or top view of same; Fig. 3, a vertical section of same with lock removed; Fig. 4, another vertical section of same with the cam E elevated and the charge-chamber D withdrawn and elevated, ready to receive a charge; Fig. 5, a perspective view of the charge-chamber detached from the gun, showing the nipple *s* and the male socket *g*. Fig. 7 is a top view of same with bore and the arrangement of the trunnion-pin *r* and nipple *s* indicated in dotted lines; Fig. 6, a perspective view of the front part of the breech-yoke CC', showing the side slots, *efef*; Fig. 8, a side and edge view of the nipple-guard detached; Fig. 9, an outside detached view of the lock; Fig. 10, an inside view of the same; Fig. 11, a front end view of the same; Fig. 12, a top view of the same with the side plates removed to permit the interior arrangement of the parts to be clearly seen; Fig. 13, an elevation and a section of the trigger; Fig. 14, view of a combined cock and tumbler with both side and edge view of the latter, showing clearly the cam-shaped portion *f''* of the projection part thereof; Fig. 15, three views of the sear, showing the cam-shaped device *g* plainly; Fig. 16, a plan view of the adjustable hind sight; Fig. 17, a view of the under side of the sight;

Fig. 18, a side view of the same, showing the sight in an elevated position.

Similar letters and reference-marks apply to similar parts in all the drawings.

In Plate 1, A A represent the stock, which is made in the usual manner. B B represent the barrel, constructed in the ordinary manner and screwed or otherwise fastened into the breech-yoke C C, as shown in Figs. 3 and 4. C C is a metallic breech-yoke or boxing, as represented in the form of a parallelepiped, having a large square mortise or slot, *abcd*, Fig. 2, cut vertically through it, and two smaller horizontal slots, *efef*, Fig. 6, cut through its sides. The front end, C', is also drilled out in the direction of its longest axis *i*, the bore of this part *k*, Fig. 6, being made larger than the bore of the barrel *m*, and passing through to the opening made by the slot *abcd*. The outer or forward half (more or less) is cut in the form of a female screw, *n*, to fit a corresponding male screw, *n'*, on the rear portion of the barrel B, for the purpose of uniting the two together. The inner portion of the bore, which is left smooth, then forms a female socket, *h*, Fig. 4, which corresponds with the male socket *g* of the charge-chamber D, which fits neatly into it. D D is the charge-chamber, fitting neatly into the front part of the breech-yoke slot, in which it works. It is formed of metallic block drilled out to form the charge-chamber *o*, and turned down at the front end to form the socket *g*, which may be left to project a fourth of an inch or more from the shoulder *p*, Fig. 5, and left thick enough to give it the necessary strength to resist the expansive force of the charge. Through its rear end passes the steel pin *r*, Figs. 4, 5, 7, forming the bearings or trunnions upon which it vibrates. These slide back and forth in the slots *efef*, as the chamber is withdrawn from or pushed forward into the socket *h*, as seen in Figs. 4 and 3. On one end of this steel pin is formed the cap-nipple *s*, having a communication with the charge-chamber *o*. A projecting pin, X, is also firmly attached to the under side of the charge-chamber, by which it is readily withdrawn from the socket *h* and elevated for the purpose of charging, as seen at Fig. 4. E E is a metallic cam-shaped block placed in the rear of the charge-chamber, fitting neatly into the rear portion of the breech-yoke slot, and vi-

brating on the pin *t* in rising to permit the withdrawal of the charge-chamber *D* from the socket *h*, as in Fig. 4, or in closing down to keep it firmly in place, as in Fig. 3. The front end of this cam *u* forms the arc of a circle having its center a short distance above the pin *t*, which gives it the action of a cam or wedge in forcing it down against the rear end of the charge-chamber, thus securing a firm and tight joint between the charge-chamber and the barrel. This cam is provided on the under side with the bell-crank or trigger-shaped lever *V*, working on the fulcrum *W*, so as to throw it up out of the breech-yoke *C* after a discharge, in order to permit the withdrawal of the charge-chamber, in doing which the lever is again thrown into place, as at Fig. 4.

In Fig. 1, *y* is a nipple-guard, (more clearly shown in side and edge views at Fig. 8,) in which *z'* represents a slot which slides on the screw *z*. *y'' y''* are pieces, one of which works on each side of the nipple *s*. They are sufficiently thick that when slid under the hammer, as in Fig. 1, they prevent it from touching the nipple, and thus prevent the accidental discharge of the load. When intended to be fired, this guard is drawn forward by the application of the thumb to the projection *z''*, provided for that purpose, when the side pieces, *y''*, pass from under the hammer, and allow it to strike the percussion-cap or other primer used.

To make the weapon more complete and effective, as well as to render effective the arrangement of a charge-chamber having a movable nipple, as described, and also to expedite the discharge of the piece, a modification of the lock becomes necessary. This consists in placing the hammer on one side instead of on the top of the gun, thus affording also a better opportunity of arranging the sights on the gun and for taking aim; also, an arrangement of the lock by which the hammer can be operated by the trigger with or without cocking the same, and thus in moments of great emergency dispensing with the separate operation of "cocking," but permitting on occasions of more leisure, when accuracy of aim is the object, the piece to be cocked by hand in the usual manner.

To permit the withdrawal of the nipple from under the hammer without the necessity of raising the hammer, a portion of its flange or rim *m'* at *F'*, Fig. 10, is removed, thus affording no obstruction to the nipple in moving back and forth with the charge-chamber to which it is attached, as described.

The lock, of which *H H I* is the case, *G'* the trigger, *f'* the tumbler, and *G* the sear, is constructed with the hammer or cock and tumbler combined in one piece, and besides the usual sear-notches and other parts common to tumblers it has the projection *n'*, Fig. 14, which is beveled off to a wedge shape toward the front part, as is clearly shown at No. 2 of Fig.

14. The trigger *G'*, Fig. 13, is provided with a steel pin, *G''*, moving freely through a vertical hole, as shown in section No. 2 of Fig. 13, and is kept in the projecting position shown by the action of the spring *g''*. The plane of motion of the trigger *G'* is at right angles to the plane of motion of the hammer and tumbler, as is clearly seen at Figs. 9, 10, and 12. The trigger is kept in position by the spring *i'*, Fig. 10. The sear *G*, working on the pivot *p'*, has one end, *w'*, pawl-shaped to engage in the tumbler-notches in the usual manner, and at the other end is a cam, *g'*, the inclined plane of which works against the side of the rear end, *S'*, of the trigger *G'*.

n' is the mainspring, and *h'''* is the sear-spring. These may be separate or combined in any approved form, the whole forming a lock of great simplicity and durability, and, in combination with the other parts of the gun, insuring great rapidity in loading and discharging the same, as well as great effectiveness and projectile force and accuracy of aim.

The operation of the above invention is as follows: The gun being in the position represented in Figs. 1 and 3, to load the same the trigger-finger is applied to the lever *v*, projecting beneath, which is drawn backward until the cam *E* is thrown up out of place. The finger is then applied to the pin *X*, which is also drawn backward until the male socket *g* of the charge-chamber is released from the female socket *h* of the yoke or barrel, when the pin is forced upward, throwing the charge-chamber *D* out of the breech-yoke, and presenting it in a convenient position for loading, as shown at Fig. 4. The charge, which may be in the ordinary form of powder and ball, or any of the suitable forms of prepared cartridge now in use, is inserted into the chamber *o*, which is then forced down into place and moved forward until the sockets are close joined. The cam *E* is then forced down into place and the cap or other primer applied. If the piece is not to be immediately fired, the nipple-guard is left drawn back under the hammer, as in Fig. 1; but if intended to be fired without delay, the nipple-guard *y* is pushed forward to allow the hammer to touch the nipple and explode the primer.

The action of the lock is as follows: If it is desired to use the lock in the ordinary way by first cocking, the cock should be drawn back as usual until the pawl *w'* catches in the second tumbler-notch. On drawing the trigger *G'*, the side of the rear part, *s'*, of the trigger *G'* impinges upon the inclined plane or cam *g'* of the sear *G*, thereby disengaging the pawl *w'* from the tumbler-notch, when the recoil of the mainspring *h''* causes the tumbler *f'* to revolve and the hammer to strike the nipple, the steel pin *G''* having immediately before passed beyond the sweep of the cam *f''*. The action of the spring *i'* in causing the return of the trigger to its place after the discharge also causes the beveled end *G''* of the

steel pin to slide up and over the inclined plane f'' , when the action of the spring g'' restores it to its position behind the projection n' of the cam f'' , as in Figs. 12, 10.

When the lock is to be operated by means of the trigger alone without cocking by hand, the operation is as follows: On drawing the trigger, the pin G'' engages the projection n' of the cam f'' , and pushes it forward until they pass beyond the range of their sweeps, when they pass each other, and are liberated. The recoil of the mainspring returns the tumbler violently to its normal position, the rear end of the trigger meanwhile holding the sear G so far back as to prevent the pawl w' engaging in the tumbler-notches as they pass by it. After the discharge the trigger and its pin G'' return to the position shown in Figs. 12 and 10, as above described.

A trigger-guard of any approved form is to be employed to protect the trigger 2 and the cam-lever v from accidental disturbance.

The principal advantages secured by this weapon is the attainment of great rapidity in loading and firing, as well as insuring the greatest effective force of the powder, by the prevention of all leakage from the almost airtight sleeve or socket joint here employed.

An experiment with this gun has given the most satisfactory results, evincing after twenty discharges no liability to "foul" in the socket-joint, and showing a projectile force equal to the penetration of five inches of solid oak timber.

The improvements herein described are also applicable to any of the guns now in use, whether smooth-bore, rifle, or shot guns, and also to ordnance. The principles may also be applied in other forms—for instance, to an upright, as well as a side hammer. I prefer the latter, as affording a clear and uninterrupted view over and along the barrel, and being more favorable for the arrangement thereon of my adjustable hind sight, which is constructed so as to permit of such adjustment as will adapt it to the various distances required in an easy and expeditious manner. This sight is constructed with the dovetail cleat 1, Figs. 16, 17, and 18, which fastens the part 2 and

ears or side guides, 3, firmly to the barrel in the usual manner. Hinged to and working neatly between the guide-pieces 3 on the pin 4 is the sight-piece 5. The rear end of which is provided with a notch-sight, 6, as shown, and the hinge end with the projection 7, which is acted on by the spring 8, tending to keep the sight constantly pressing toward the barrel, and thus keeping the brace-pawl 12 in place in any of the notches in which it may be adjusted. The slide 9 is further provided, which, when pushed close against the sight-piece, secures it from casual movement in any required position. The brace 10 is hinged at 11, and is provided with a pawl-shaped end, 12, to catch and hold in the notches marked 300, 400, &c., which notches and figures may be made on the barrel itself or on a separate piece attached to the sight. In using this sight, it is to be elevated until the pawl 12 of the brace 10 falls into the notch marked with the figures corresponding with the distance of the target, where it is then held by the action of the spring 8, and further secured by the slide 9.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The steel pin r , provided with the nipple s , in combination with a vibrating reciprocating charge-chamber, as described.

2. The hammer F , constructed with the flange m' , arranged as described, working on the side of the gun, in combination with a reciprocatory nipple, substantially as described, and for the purposes set forth.

3. The cam f'' , attached to the tumbler of a gun-lock, in combination with the sliding steel pin G'' , constructed and operating substantially as described.

4. The cam g' , attached to the sear of a gun-lock, in combination with the trigger G' , the steel sliding pin G'' , and the cam-shaped projection f'' , substantially as and for the purposes described.

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Witnesses:

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