

## Breech-Loading Fire-Arms.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 164,642, dated June 22, 1875; application filed December 4, 1874.

*To all whom it may concern:*

Be it known that I, BERNARD FASOLDT, of the city and county of Albany, State of New York, have invented certain Improvements in Fire-Arms; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 represents a side elevation of a lock of a fire-arm embodying the improvements in this invention, and illustrating the same unset for operation in discharging the piece. Fig. 2 represents a side elevation of the same, with the several parts set in position for discharging the piece, by the guard-lever being thrown down, as required, for setting for the first discharge. Fig. 3 represents a sectional elevation of a section of the breech and the stock; also, a portion of the lock.

My invention relates to that class of fire-arms or guns known as breech-loaders, employing cartridges; and consists in the combination of the several devices hereinafter described, so arranged that the pressure of the explosive employed to project the ball or shot may be made to reset or cock the piece at each discharge, for a subsequent operation for a future discharge.

That others may make and use the improvements in this invention, I will proceed to describe them in reference to the drawings and the letters of reference marked thereon, the same letters indicating like parts.

In the drawings, A represents the stock of the fire-arm. B is the plate carrying the lock, and connecting it with the stock and barrel C. C<sup>1</sup> is the breech of the barrel. The said barrel is connected with the stock by a hinge-joint from the bracket B', connecting with the said plate, as heretofore practiced, so as to be capable of being thrown down, as in Fig. 3, for the insertion of the cartridge. When the barrel is in position for firing it is held in place by any known device heretofore employed for that purpose. The end of the breech, when the barrel is thrown up in place, falls against the end C<sup>2</sup> of the lock-plate B, in which is made the recess *b*, for receiving the head *a* of the plunger D, and a similar recess, *b'*, for receiving the stem *a'* of the said plunger. E is the tumbler, pivoted at *e* to

the lock-plate, and provided with a cam, *e'*, which is intended to work against the stem of the plunger, to force the same forward when the piece is discharged, and to receive the pressure of the said plunger in the discharge, to cast the said tumbler back for recocking or resetting.

When the lock is uncocked the said pivoted tumbler will be in the position shown in Fig. 1, with the longest throw of the cam *e'* in almost a vertical range over the pivot *e*, on which the tumbler turns, while the convex face of the cam will be made to receive the end of the stem of the plunger at a point above the said pivot.

Made in the body of the tumbler, at a point below the pivot, is the notch *e''*, into which the dog-lever G, pivoted to the lock-plate, catches, when the tumbler is thrown back for cocking the piece. F is the mainspring, supported in position by the block or post O, with one limb, *f*, of the spring bearing against the cam *e'''* of the tumbler, as shown, and the other limb, *f'*, bearing on the long arm of the dog-lever. H is the trigger-lever, also pivoted to the plate B, with the usual finger-piece projecting below, and the catch end *i* provided with the usual knuckle-dog *n*, which dog is preserved in position by the spring *i'* when the dog is relieved from pressure or action with the usual dog-lever G. J is the guard-lever, pivoted at *j* to the plate B, which guard carries a short lever, *m*, connecting with the end of the vertical bar L, in such a manner as to be capable of drawing the said bar downward from position shown in Fig. 1 to that shown in Fig. 2. The said bar is placed on one side of the tumbler and the dog-lever, and is provided with the vertical slot *s*, in which works the pin *s'*, secured to the cam *e'''* of the tumbler.

When the guard-lever J is thrown down, as in Fig. 2, the lever *m* will be cast down, and be made to draw on the pin *s'* of the cam *e'''* of the tumbler, through the medium of the bar L, and cause the said tumbler to turn on its pivot, so as to carry the cam *e'* back, and the notch *e''* forward, to positions shown in Fig. 2, when the short end of the dog-lever will be made to engage with the said notch *e''*, as it is snapped in place by the limb *f'* of the spring



acting on the said dog-lever, as shown. When the said tumbler is thus thrown back, the cam  $e'''$  will press down the limb  $f$  of the mainspring from position shown in Fig. 1 to that shown in Fig. 2, in which position the spring will have great tension and force of action on the tumbler to cast it forward when the dog-lever is thrown out of the notch  $e''$ , so as to drive the plunger forward by the throw of the cam  $e'$  acting against the stem of the said plunger.

It will be observed that the limb  $f$  of the mainspring bears on the lower inclined surface of the cam  $e'''$  of the tumbler E and at a point back of a range with the pivot  $e$ , so when the said tumbler is turned back the throw of the said cam, from position in Fig. 1 to that in Fig. 2, will press down the said main spring without being braced by the same, except from its elasticity or tension. It is also seen that the end of the stem of the plunger D bears against the cam  $e'$  at a point above the pivot  $e$ , and that, when any force is exerted on the said cam by the said plunger, the tumbler carrying the said cam will turn back and the cam  $e'''$  be thrown down to bear down the mainspring. It is also seen that the depth of the recess  $b$  in the plate at the breech and the thickness of the head of the plunger are such as to permit them to be forced back sufficient to cause the stem to crowd the cam  $e'$  of the tumbler back and the notch  $e''$  forward to engage with the dog-levers without straining the pivot, as the head of the plunger will strike the bottom of the recess  $b$ , to prevent any excessive throw-back of the plunger. It is also seen that the tumbler may be thrown back without affecting in the least the bar L, as the slot  $s$  will permit the pin  $s'$  of the tumbler being carried down without throwing the said bar down longitudinally.

By this peculiar or equivalent construction of the recess  $b$ , plunger D, tumbler, provided with the cams  $e'$  and  $e'''$ , and notch  $e''$ , and pivoted as described, with the pin  $s'$  working in the slots of the vertical bar L, and the main spring operating as described, and the dog lever G, it is intended that the pressure from the explosion or concussion in firing the piece will so operate as to force the tumbler back, so that the dog-lever may be made to engage with the holding-notch in the tumbler to hold the piece cocked for a subsequent discharge, as in Fig. 2, with the guard-lever J in proper position up in place, as in Fig. 1.

The cartridge is to be inserted in the manner usual in breech-loading guns, when the breech is thrown up, as in Fig. 3, after which the barrel is thrown in place and locked down by the usual devices employed, or any other. When the barrel is in position for firing the bore of breech will be directly in front of the plunger, as in Fig. 1. To cock the piece for a discharge the guard-lever is to be thrown down from the position shown in Fig. 1 to that

shown in Fig. 2, when the lever  $m$  will draw the bar L downward, so as to carry the tumbler back by the pin  $s'$  attached to the cam  $e'''$  and working in the slot  $s$  of the said bar. As the tumbler is turned back the cam  $e'''$  will compress the mainspring, and the notch  $e''$  will be carried forward to engage with the dog-lever G, which will be snapped in place by the limb of the spring  $f'$ .

When the several parts are in the position above described, the stem of the plunger is permitted to bear against or be opposite the convex face of the cam  $e'$  of the tumbler. The guard-lever may then be thrown up against the plate, as in Fig. 1. When the operator presses on the trigger H to force it back the dog-lever will be cast out from the holding-notch in the tumbler; and, being relieved, the mainspring will suddenly force the tumbler over, so that the cam  $e'$  will strike the plunger and project the plunger forward with sufficient force to explode the cartridge. In the explosion of the cartridge the concussion will force the plunger back, so that the stem will carry the cams  $e'$  and  $e'''$  back sufficiently to carry the notch  $e''$  forward for its re-engagement with the dog-lever while the mainspring will be again compressed and the lock be set for another operation for firing the piece. This manner of operation of the several parts will be repeated at each discharge, and the fire-arm or gun may be thus rendered more effective and capable of being fired with greater rapidity than those guns or fire-arms requiring several operations to be performed for properly cocking the piece.

When it is desired to uncock the piece preparatory to setting it aside the guard-lever is to be thrown down and gently held, and while the operator presses on the trigger the said guard-lever is to be gently carried up to the plate, when the several parts will gradually assume the position in Fig. 1.

It is evident that the above improvements may be applied with advantage to fire-arms of all descriptions, and also guns or other ordnance.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the pivoted tumbler E, provided with cams, as described, mainspring F, dog-lever G, and trigger H, of the plunger D, with the recess  $b$  opposite the bore in the breech, substantially as and for the purpose set forth.

2. The combination, with the tumbler E, provided with the pin  $s'$ , and the guard-lever J, provided with the lever  $m$ , of the bar L, provided with the slot  $s$ , substantially as and for the purpose set forth.

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Witnesses:

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JAMES CONNER.