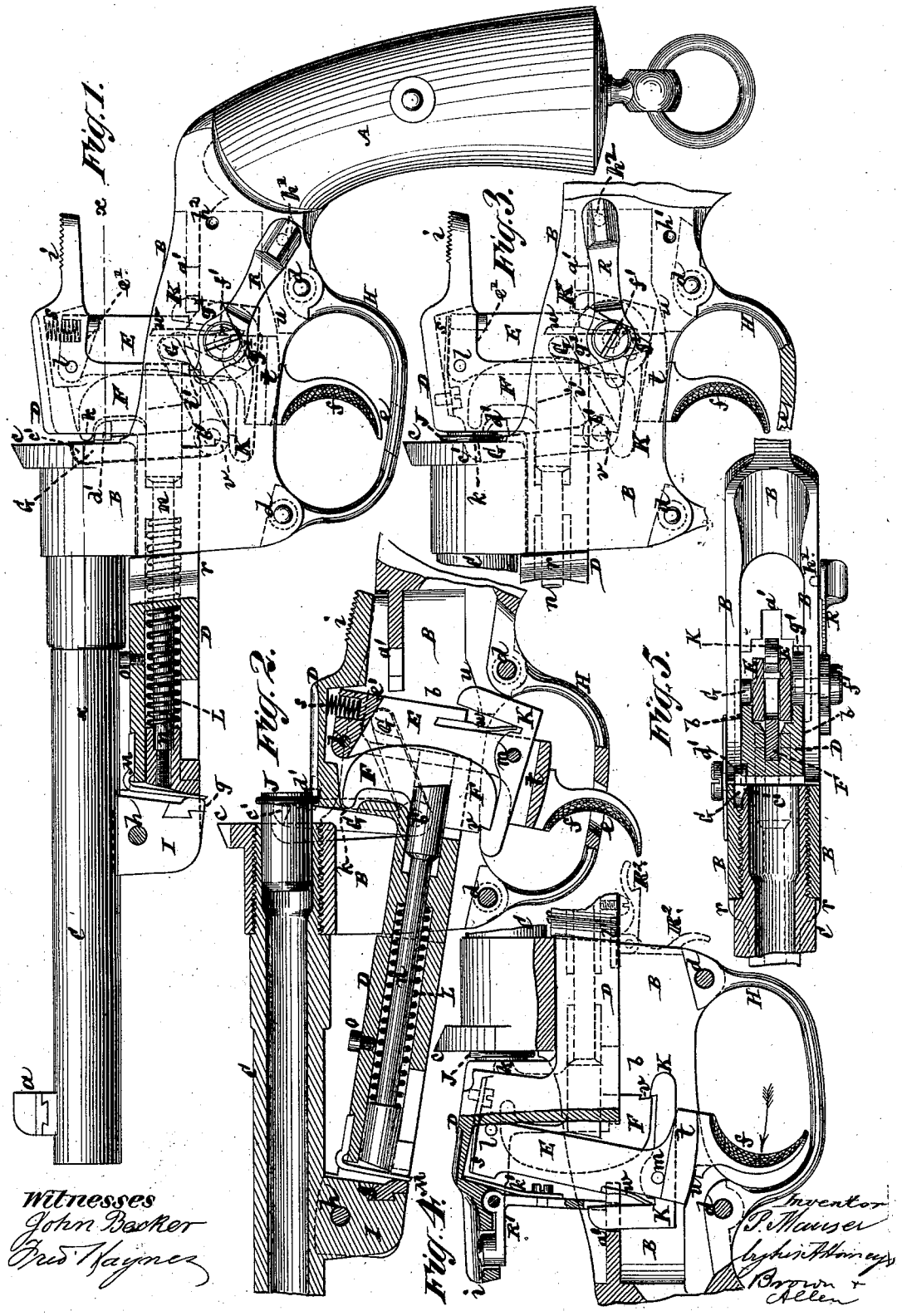
P. MAUSER.

Breech-Loading Fire-Arms.

No. 200,322. Patented Feb. 12, 1878.



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IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **200,322**, dated February 12, 1878; application filed July 21, 1877.

To all whom it may concern:

Be it known that I, PAUL MAUSER, of Oberndorf, in the Kingdom of Würtemberg, have invented certain Improvements in Breech-Loading Fire-Arms, of which the following is a description, reference being had to the accompanying drawing, forming part of this specification.

This invention, which is applicable to different kinds of breech-loaders, consists in a novel construction and combination of the breech-block and breech-frame of the arm with an independent hammer carried by said block; also, in certain novel combinations of the breech-block closing-spring, the breech-block, the hammer, the cartridge-shell extractor, trigger, and other working parts or devices, whereby a very simple and efficient mechanism is obtained, and the arm may be put in loading or firing positions, and be charged or discharged by three consecutive movements. The cartridge-shell extractor is made to hold the breech-block when down, and the breech-block and trigger may be locked against accidental disturbance when the breech is closed; also, other advantages are obtained.

Figure 1 represents a partly-sectional side elevation of a cavalry-pistol having my invention applied, showing the breech-block as closed and the hammer released, but with the cartridge removed. Fig. 2 is a lateral longitudinal section of the same in part, showing the breech-block open, the hammer as partly forced back to engage with the sear, and the exploded cartridge as ejected by the extractor. Fig. 3 is a side view in part, showing the breech-block closed, and the hammer in like position with the sear and trigger as in Fig. 2. Fig. 4 is a partly-sectional similar view, showing the hammer as drawn back by the trigger and about to be released. Fig. 5 is a partial longitudinal section on the line *x x* in Fig. 1.

A is the butt; B, the breech-frame; and C, the barrel, which may be rifled, and have a forward sight, *a*, removably secured to it.

D is the breech block or piece; E, the trigger; F, the hammer, and G the cartridge-shell ejector.

The breech-frame B, which also forms the stock, and has the sides of the butt, which are of wood, secured to it, may be of steel, and is made with a vertical parallel-sided mortise, *b*, through it, for the reception of the movable breech-piece D and mechanism of the arm. Said frame is constructed to receive within its forward end the rear end of the barrel, and to carry the rear sight *c*.

H is the trigger-guard, secured, by end screws *d d*, to the frame B, and opening with a hinge motion on removing one of said screws. Said guard, which may be of the usual bow form, has an opening, *e*, in its bottom for the projection of the finger portion *f* of the trigger through it when lowering the breech-piece D to charge the arm.

Formed on or attached to the under side of the barrel C, at any desired point intermediate of the length of the latter, is a nose-piece or projection, I, which is provided in the lower end of its rear portion with a lip-piece, *g*. This nose-piece I has the forward end of the breech-piece D pivoted to it by a pin, *h*.

The breech may be of a conical form for reception of the cartridge J, which latter should be of metal, and have a rear flange containing the fulminate.

The breech-piece D is of a bent-lever shape, and otherwise of peculiar construction. Thus it is made to form a hinge-joint with the nose-piece I by the pin *h*, and from thence passes backwardly between the walls of the frame B, which latter has the downward opening through it extended also to its front, and so that the walls of the frame restrain the breech-piece from lateral motion. The rear portion of said breech-piece is bent or turned up to close the breech or come in rear of the cartridge when said piece is raised. It is also made with a depression in its top to guide the cartridge when the breech is open, and to allow of the expulsion of the cartridge-shell over it. Such upper portion of said breech-piece is bent or turned backwardly, and is formed at its rear end with a roughened thumb-piece, *i*. Said breech-piece, which is hollow, carries within it the hammer F, and has a small hole, *k*, in its breech-closing face, to admit of the nose of the hammer projecting through it when the hammer is released to explode the cartridge. The trigger E is also

carried by the breech-piece, being pivoted to the latter by a pin, *l*, above. The sear K is connected by a pivot, *m*, to the trigger below.

The hammer F has attached to it a stem or shank, *n*, which is arranged to slide, but is restricted from turning within the forward hollow lower portion of the breech-piece, and which has applied to it a spring, L, that serves to force the hammer forward.

Applied to the forward end portion of the breech-piece D, in rear of the lip-piece *g*, is a spring, M, which exerts a constant tendency to raise or close said breech-piece. To arrest the upward movement of the breech-piece D, and to insure a correct position for the same when closed, it is provided on the upper side of its forward portion with a pin or screw, *o*, which, when the breech is raised, strikes the under side of the barrel.

The breech-piece D has ears or projections *r r* on the forward end of it, immediately in advance of the frame B. These ears, when the breech-piece is closed, bear against the forward ends of the cheeks or side pieces of the frame B, and serve to resist the recoil, or to relieve the joint-pin *h* of the breech-piece from strain when firing the arm.

The trigger E is arranged between the cheeks of the bent portion of the breech-piece working within the frame B, and is controlled by a spring, *s*. Its lower portion is formed with a base or shoulders, *t*, which, when the trigger is drawn back, ride upon concave bearings *u* on or in opposite sides of the cheeks of the frame B. This construction serves to lock or hold the breech-block D in position when raised or closed—that is to say, the bearings *u* restrict it from downward movement, and the pin or screw *o* from an undue upward motion.

The hammer F, which may be in the form of an oblong head, on the inner or back end of the longitudinally-sliding stem *n*, and has its nose, which explodes the cartridge, on the upper part of its front or face, is constructed at its lower end, in front, with a notch or step, *v*, into or within which the sear K catches to draw back the hammer by the motion of the trigger.

When the breech-block D is pressed downward to open the breech by pressure of the thumb or finger on the thumb-piece *i*, a lower projection on the forward end of the hammer-stem *n* bears through the interposed shutting-spring M on the lip-piece *g* of the nose-piece I, and causes the hammer F to be slid slightly back. This allows of the engagement of the forward end of the sear K with the step *v* of the hammer, a spring, *w*, carried by the trigger acting upon an upwardly-bent rear arm of the sear to effect such engagement.

After the breech-block D has been closed, having the sear engaged with the hammer, as described, then, by pulling backward on the finger portion *f* of the trigger E, the curved base *t* of the trigger is moved from the position shown for it in Fig. 3 to bring it on or over the bearings *u*, as shown in Fig. 4, and by moving the trigger farther back the rear bent arm of the sear K strikes a stop or projection, *a'*, and disengages the sear from the hammer, which then is shot forward by the spring L to explode the cartridge.

To hold the breech-block D down when lowered to open the breech, there is fitted within a groove in one of the cheeks of the frame B an elbow-lever, G, fitted to turn on a pivot, *b'*. This lever has a double function or use. Thus it not only serves to lock or hold the breech-block when down, but it also serves to eject the shell of the exploded cartridge. To this end it is formed at its upper end with a side lip, *c'*, which catches behind the flange of the cartridge, and with a nose or hook, *d'*, which, when the breech-block is lowered, is caused to lap over or onto an upper recessed portion in the side of said block so soon as a portion, *e'*, of the latter comes down and depresses the rear end of the lever G. At the same time the side lip *c'* extracts or expels the shell of the exploded cartridge.

When the cartridge J is introduced to its place in the breech, its flange catches against the side lip *c'* of the lever G, and moves the hook *d'* of said lever from off the breech-block, and so leaves said block free to rise or close by its spring M.

This combination of the elbow-lever G with the breech-block and breech-frame differs from other combinations in which the elbow-lever for extracting the cartridge-shell and for locking the breech-block when down has no fixed fulcrum, and is not operated, as in my combination, in a direct, quick, and positive manner by the rear end of the breech-block, but is operated indirectly at a shorter radius by the mainspring of the breech mechanism.

To prevent the breech-block from being accidentally opened and the cartridge from dropping out of the breech, of which there would be a liability in the use of the weapon as a cavalry arm, the breech-block has combined with it a locking catch or stop, which, as represented in Figs. 1, 3, and 5, is constructed as follows: R is a spring-lever, arranged on the outside of the breech-frame B, and having its pivot *f'* projecting within the one side or cheek of the latter. Secured to the inner end of this pivot *f'* is a sector or other suitably-shaped cam, *g'*, which, when the spring-lever R is turned down, as shown in Fig. 1, and so that a teat on the outer end of it engages with a lower indentation, h^1, in the exterior of the side of the frame B, permits of the breech-block being lowered without any interference by the locking catch or stop; but when the spring-lever R is turned up, as shown in Fig. 3, and so that the teat on its outer end engages with an upper indentation, h^2, in the exterior of the side of the frame B, then the upper forward portion of the cam *g'* engages with a notch or step, *i'*, in the breech-block, and holds the latter from being

pressed down; also, the point or lower end of the cam g' enters a curved recess in the base portion t of the trigger, and locks or holds the latter from being drawn back. In this way or by these means both the breech-block and the trigger are prevented from being accidentally shifted, and the unexploded cartridge from dropping out or from being prematurely exploded.

Other means, however, might be used for locking the breech-block against being accidentally or prematurely lowered. Thus, Fig. 4 of the drawing shows two different contrivances for the purpose. At the left hand of said figure is an angle-lever, R′, arranged to project under the thumb-piece i of the breech-block, having a button which projects through said thumb-piece, so that it is borne on by the thumb when pressing down the breech-block. This causes the lower arm of said angle-lever to be brought against the action of a spring, k', over an enlarged opening in the fixed stop or projection a', and so permits of the descent of said lever in common with the thumb-piece i when depressing the breech-block; but when the latter is raised the lower arm of the lever R^1 rests on the stop or projection a', and prevents the descent of the breech-block. To the right hand of Fig. 4 is shown another device for the same purpose. This device consists of a small hinged tongue, R^2, controlled by a spring, l'. When placed in the position represented by lower dotted lines, it locks the breech-block from moving downward; but when turned to the position represented for it by upper dotted lines, it allows of the breech-block being lowered. Neither of these last-named breech-block locking stops or devices, however, R^1 R^2, also locks the trigger, as does the locking catch or stop described with reference to Figs. 1, 3, and 5.

To charge and discharge the weapon, I hold the arm by its butt with one hand and press by the thumb of the same hand upon the thumb-piece i of the breech-block, and then introduce a cartridge by the other hand into the breech. On releasing pressure from the thumb-piece i, the breech-block is raised and closes the breech in rear of the cartridge. I then press with the forefinger on the finger-piece f of the trigger and explode the cartridge. After this I again press down on the thumb-piece i, and as the breech-block is depressed to its seat cause the cartridge-ejector G to expel the exploded cartridge and to lock the breech-block in its lowered position, when the arm will be ready to receive a fresh charge. If necessary to raise the breech-piece before entering a fresh charge, the lever or cartridge-ejector G may be separately manipulated to relieve it of its hold on the breech-block.

By pressing down the breech-block not only is the discharged cartridge expelled from the breech and the breech-block locked in its lowered position, but the hammer is put at rest and into lock with the sear, so that by this one movement the arm is ready to receive a new charge. Furthermore, the introduction of the cartridge into the breech causes the breech-block to be unlocked, so that it may be raised by its spring and the arm put into position ready for the explosion of a cartridge. Likewise, by pressing with the finger upon the trigger in the ordinary way, the breech-block is first secured in its closed position and the hammer-spring drawn out to explode the cartridge, and toward the concluding portion of the back movement of the trigger the hammer is disengaged and is projected forward by its spring to strike the cartridge. Thus three movements serve to put the arm in firing position and to charge and discharge it.

I claim—

1. The breech-block D, pivoted in front to the under side of the barrel or projection therefrom, and constructed with an upwardly-bent portion at its rear end, in combination with an independent hammer carried by the breech-block, and with the breech-frame B, having a mortise up through it, and open in front for the reception and movement of said block, substantially as specified.

2. The combination of the breech-block closing-spring M, the nose-piece I on the under side of the barrel, the lip-piece g, the sliding hammer-stem u, the hammer F, the breech-block D, and the breech-frame B, essentially as described.

3. The pin or screw o on the upper forward portion of the breech-block, in combination with the barrel C and the breech-block D, essentially as described.

4. The combination, with the breech-block D, pivoted in front to the under side of the barrel, of the trigger E, pivoted to the upper rear portion of the breech-block, and the sear K, pivoted to the trigger, for operation in relation with each other and with the hammer, substantially as specified.

5. The trigger E, constructed with a convex base or lower sides t, in combination with the bearings u within the breech-frame, and the pivoted breech-block D, essentially as described.

6. The stop or projection a', in combination with the sear K, having an upwardly-bent rear arm, the trigger E, carrying said sear, and pivoted to the breech-block, the sliding hammer F, having a notch or step, v, in its lower portion for engagement with the sear, and the forwardly-pivoted breech-block, substantially as specified.

7. The sliding hammer F, with its attached stem n, in combination with the spring L and hollow breech-block D, essentially as described.

8. The elbow-lever G, which serves to extract the cartridge-shell, and to hold the breech-block when down, in combination with the forwardly-pivoted breech-block D, the breech-frame B, the pivot b', uniting said lever at a fixed point with the breech-frame, and the por-

tion e' of the rear end of the breech-block, arranged to bear down on the lower arm of the elbow-lever when the breech-block is lowered, whereby said lever is operated in a direct, quick, and positive manner by the rear end of the breech-block, substantially as specified.

9. The combination, with the forwardly-pivoted breech-block D, of a locking catch or stop for holding said block from being accidentally shifted when raised to close the breech, essentially as described.

10. The locking catch or stop for holding the breech-block in its closed position, composed of a spring stop-lever, R, having an attached cam, g', in combination with the pivoted breech-block D, having a step or notch, i', and the reduced base portions t of the trigger, whereby the trigger is also locked from being accidentally drawn back, substantially as specified.

11. The trigger-guard H, having an opening, e, in its lower portion, for the finger-piece of the trigger to pass through when lowering the breech-block, essentially as described.

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