C. Howard,
Breech Loader.

No 50,125. Patented Sep 26. 1865.

Fig: 1.

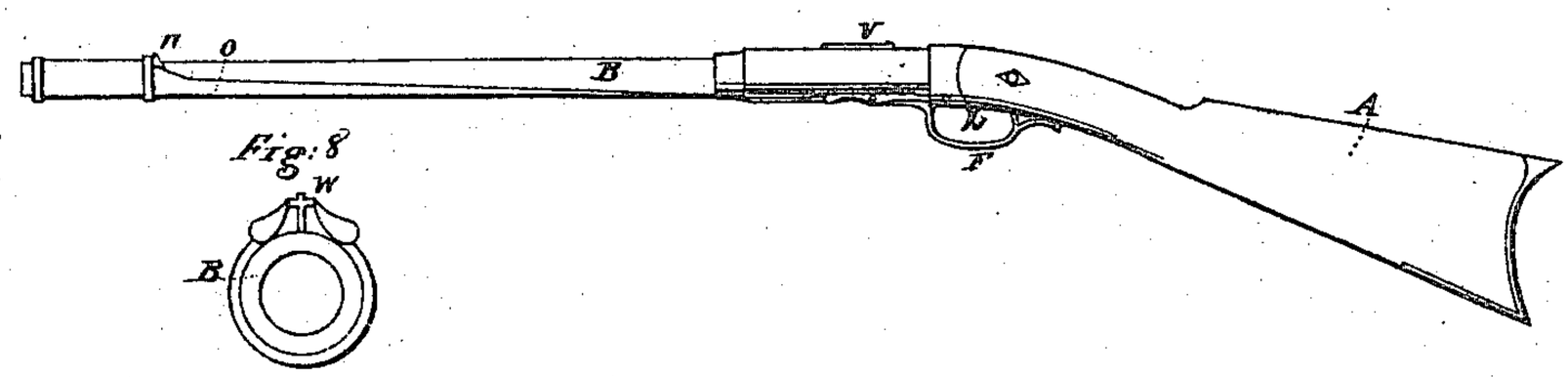


Fig: 7.

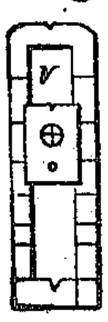


Fig: 8

Fig: 2.

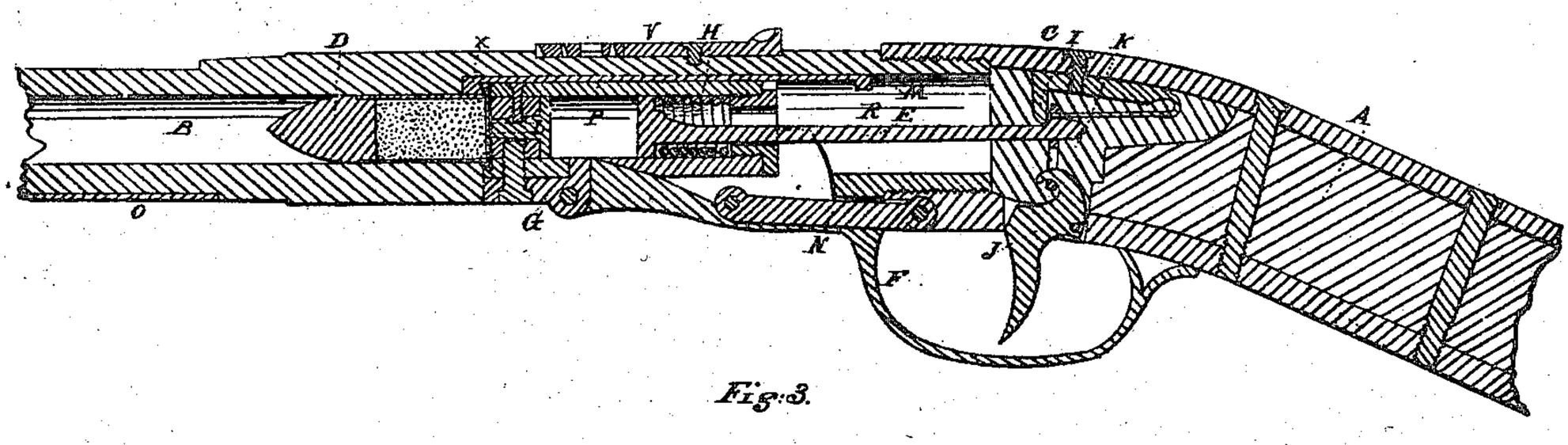


Fig: 3.

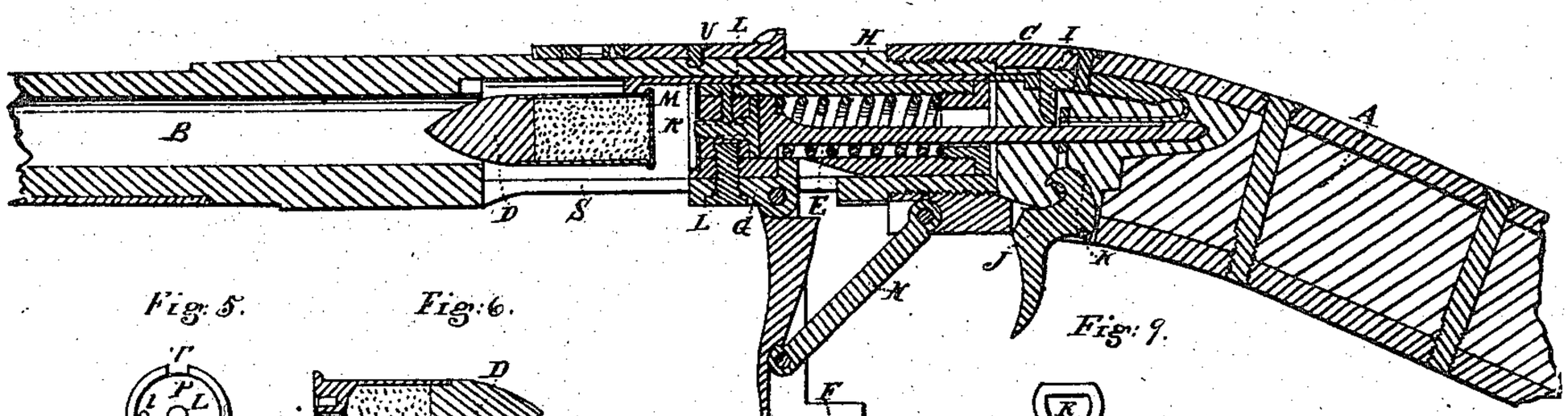


Fig: 5.

Fig: 6.

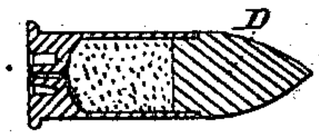


Fig: 9.

Fig: 4.

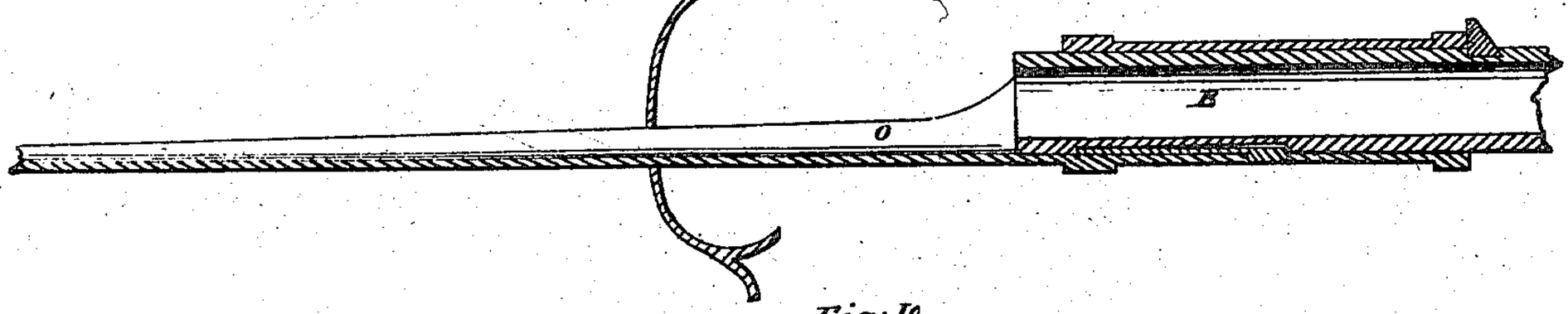
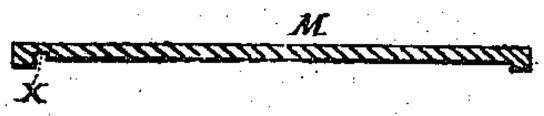


Fig: 10.



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UNITED STATES PATENT OFFICE.

CHARLES HOWARD, OF NEW YORK, N. Y.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **50,125**, dated September 26, 1865.

To all whom it may concern:

Be it known that I, CHARLES HOWARD, of the city, county, and State of New York, have invented a certain new and useful Improvement in Breech-Loading Fire-Arms; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, and the letters of reference marked thereon, forming part of this specification.

In the drawings, Figure 1 is a side view of said fire-arm with the lever-guard closed. Fig. 2 is a vertical longitudinal section of the same with the lever-guard closed, and the cartridge forced thereby into the small caliber of the barrel. It also shows the fire-arm cocked and ready for discharging. Fig. 3 is also a vertical longitudinal section of the same, showing the manner of inserting the cartridge into the breech, and the lever-guard open. Fig. 4 is a vertical longitudinal section of the bayonet and barrel, showing the manner of adjusting the bayonet to the barrel. Fig. 5 is an end view of plunger. Fig. 6 is a sectional view of a cartridge used for loose ammunition. Fig. 7 is a view of the back sight, V, with the slide-frame up, as seen when aiming. Fig. 8 is a view of forward sight, W, as seen when aiming. Fig. 9 is a back and forward view of the connecting-stirrup K. Fig. 10 is a side view of a hook for drawing out the shell of a metal cartridge after the discharge of the piece, showing said hook in detail and more clearly than it can be well represented in the general views.

A in Fig. 1 is the stock. B is the barrel, and is made with a large caliber at the back end, thus forming a chamber, R, for the sliding breech-pin P to slide backward to admit of the cartridge D, as shown in Fig. 3; also to slide forward, so as to force said cartridge into the small caliber of the barrel, as shown in Fig. 2. There is also a slot or opening, S, cut through the bottom side of the back end of the barrel, through which the cartridge is inserted, and through which the plunger is attached to the lever-guard that moves the plunger and opens and closes the aperture in the act of loading the fire-arm. The chamber R, which the back end of the barrel forms, extends back through the breech-piece C.

The stock A and barrel B are joined together by the metallic breech-piece C, through which the end of the plunger or sliding breech-pin P, inclosing the hammer-rod E, passes whenever the lever-guard F is thrown outward, in order to open the chamber for the introduction of a cartridge.

The lock of said fire-arm consists of a hammer-rod, E, a spiral spring, H, a spring-hook, I, a trigger, J, a connection-stirrup, K, a sliding hook, M, and two percussion-pins, L *l*, one of which passes through the center of the head of the plunger to explode the cap whenever loose ammunition is used. This pin has a large head which covers the head of the small side pin, *l*, and transmits the stroke of the hammer to the head of the said small pin, and at the same time keeps the small pin in its place, the center pin being held in its place by the end of a small screw passing through the side of the plunger into a slot or notch in the side of said center pin, said notch being sufficiently large to admit the pin to slide enough to explode the cap on the cartridge. The small pin *l* passes through the head of the plunger near one side, so as to explode fixed ammunition or metallic cartridge.

The lever-guard F is attached at its forward end to the plunger by a joint and a metallic frog or block, G, which is firmly secured to the plunger, there being an opening in the bottom side of the back end of the barrel of sufficient width and length to admit the plunger thus attached to slide backward and forward, as the guard is open and shut, a sufficient distance to open and shut a chamber for the reception of the cartridge, as heretofore described. Said lever-guard is also attached to the breech-piece C by a metallic yoke, N, with a hole in each end, one end being secured by a bolt or pin to the lever-guard a short distance from the forward end, and the other end of said yoke is secured in like manner to the forward end of the breech-piece C, so as to form a firm joint at each end, said yoke forming a fulcrum for the lever-guard to act on, so as to force the plunger back and forward, as desired, to open and close the aperture for the cartridge and to force the cartridge forward into the barrel of the fire-arm. Said yoke, in connection with the forward end of the lever, forms a strong and rigid knee-joint, which shoves home and rigidly

holds the cartridge. This yoke is sometimes made double, or in two pieces, and is then attached in like manner to the sides of said lever-guard and breech-piece, instead of the center. There is also a sliding hook, M, for pulling the shell of the exploded cartridge out of the barrel. Said slide is placed in a groove cut in the outside of the plunger longitudinally, said slide being longer than the plunger, with a notch or hook on each end, and is so arranged that when the guard is thrown open, which brings the back end of the plunger against the back end of the chamber, the slide is forced forward, projecting into the open space, so that when the cartridge is inserted it lies on the forward end of the slide, with the flange of the cartridge between the head of the plunger and the hook, (or notch on the end of the slide;) and when the plunger is brought forward by closing said guard the cartridge is pushed forward into the barrel, leaving the hook or notch *x* in front of the flange of the cartridge, so that when the piece is discharged and the lever-guard thrown back to load again this sliding hook pulls the old cartridge-shell out of the barrel, and it falls from the gun without any assistance of the operator. There is also a notch, X, on the front projection of said slide for throwing the shell of said cartridge out of the recess U, which is turned out of the forward end of the plunger, said recess being of sufficient size and depth to admit the back end of the cartridge to enter as deep as the thickness of the flange, said recess being made for the double purpose of protecting the flange of the cartridge both from inside and outside pressure, and for pulling the cartridge out of the barrel, if it should be desired, without the use of the hook on the slide, the said recess being turned dovetailing, so that when the shell of the cartridge swells as it does by explosion, it is firmly held in the said recess until pulled out of the barrel as the plunger is withdrawn, in which case the notch on the slide shoves the shell from the recess whenever the guard is thrown open, when it drops out of the gun itself. When the recess is used to pull out the shell no forward hook is needed on the slide, in which case the whole end of the slide may be used instead of a notch to throw out the shell.

The forward part of the lever-guard is so constructed that in closing it fills or shuts the slot or opening in the barrel, and the projection on said lever-guard shuts into notches in the side and behind the back end of said plunger, and between the plunger and the back end of the slot in the barrel, also against the metallic breech-piece, all of which (including power-joint formed by the fulcrum-yoke and end of the lever-guard) holds the said plunger firmly and rigidly against the cartridge and the forward end of the chamber in which the plunger travels, making it so firm and tight that no gas escapes under the pressure of the heaviest charges. The forward sight on said fire-arm is formed by a silver or bright cross embedded in dark metal, so that the eye perceives it at a glance, the vertical portion of the cross pointing up to the center of the mark, the horizontal dividing it laterally, so that the least deviation is at once detected. The back sight is formed so that it lies flat upon the barrel, so as not to be exposed to injury or to injure the party holding it. There being no cock to the gun, and the sight being thus made, this fire-arm is less liable to accident and is smooth and pleasant to handle. The said back sight is formed of three pieces, yet is condensed in one thin layer on the barrel, still has all the advantages of the more cumbersome and complicated sights now in use. The center piece of this sight, which secures it to the barrel by a screw, forms the first, or what is called a common "crotch-sight." The slide-frame, or the part that turns up, is attached to each side of the center piece by a pin, forming a close joint. When the said slide-frame is down, it lies close on the barrel and incloses the center piece and the sliding sight. The sliding sight (or plate which is made with a groove on each end or side) slides up and down in said frame to adjust it to any distance desired to be shot. This sliding plate has, first, a notch on the top, forming a crotch-sight; second, a small hole for a globe-sight; third, a large hole with a cross of fine wire, forming what is called a "telescope" or "hair" sight.

The bayonet O of said fire-arm is formed by a tube at one end and a tapering segment of a tube to a point at the other end. Said tubular form adapts it to the outer surface of the barrel, so that when the bayonet is returned or in its ordinary carrying position, the butt-end (which is a perfect tube) embraces the forward end of the barrel between the muzzle and forward sight. The balance of the bayonet (which is a tapering section of a tube) extends back, closely and smoothly embracing the bottom of the barrel. When said bayonet is fixed (or in position to use) it is reversed and placed on the end of the barrel as before, with point extending forward and the butt or tube end inclosing the end of the barrel between the muzzle and sight, as before, the sight forming a firm base for the back end of the bayonet to rest against. Said bayonet is kept in place, both when fixed and returned, by a spring-catch connecting the tubular part to the outer end of the barrel.

The plunger or sliding breech-pin P is made to fit the caliber in the back end of the barrel, is tubular, with the forward end solid, and the back end closed by a head being screwed in. There is a hole through said head for the hammer-rod E to slide in. The caliber of said plunger incloses the hammer-rod and spiral spring by which said hammer is propelled. Said plunger has a groove cut in its surface through its entire length for the sliding hook M to travel in. It also has a recess turned out at the forward end to protect the

flange of the cartridge, and to pull the shell of the cartridge out of the barrel, if desired, without the use of the sliding hook.

The hammer-rod E is formed with a head on the forward end for the purpose of compressing the spiral spring, which is coiled around the rod and held between the head of the rod and the back end of the plunger, all within the caliber of said plunger. There is also a notch on the back end of rod to hold it on the spring-hook while the lever-guard is being closed, which compresses the spring and cocks the fire-arm.

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

1. The combination of the plunger P, the link N, and the lever-guard F, said lever-guard being so constructed and adapted to the other parts as to connect to the plunger by means of an opening for the insertion of the cartridge in the under side of the barrel, and also perform the several functions of a trigger-guard, a lever for operating the plunger, and a recoil-block between the plunger and a fixed portion of the gun, substantially as and to the effect hereinabove set forth.

2. As my improvement, the plunger made with a head screwed into the back end to hold the spiral spring and to guide the hammer-rod, also, the groove in said plunger for the sliding hook to travel in, substantially as and for the purpose set forth.

3. The form of the center percussion-pin, L, being formed with a large flat head, fitting the whole caliber of the plunger, and covering the head of the small side percussion-pin, so that when the center pin is struck by the head of the hammer it drives the small side pin also, and also holds the small pin in its place, substantially as and for the purpose set forth.

4. The making of the hook and the spring that holds the hammer-rod both in one piece, and fastening the same to the upper instead of the lower strap of the breech-piece, substantially as and for the purpose set forth.

5. The peculiar construction of the stirrup K, it being made so that it embraces the end of the hook, spring, hammer-rod, and trigger, holding the hammer-rod firmly to the hook when the gun is cocked, (it also pulls the rod from the hook when the trigger is pulled to fire the gun,) substantially as and for the purpose set forth.

CHARLES HOWARD.

Witnesses:

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CHAS. E. HORE.