

(No Model.)

L. N. WALKER.
BREECH LOADING GUN.

No. 354,452.

Patented Dec. 14, 1886.

Fig. 1.

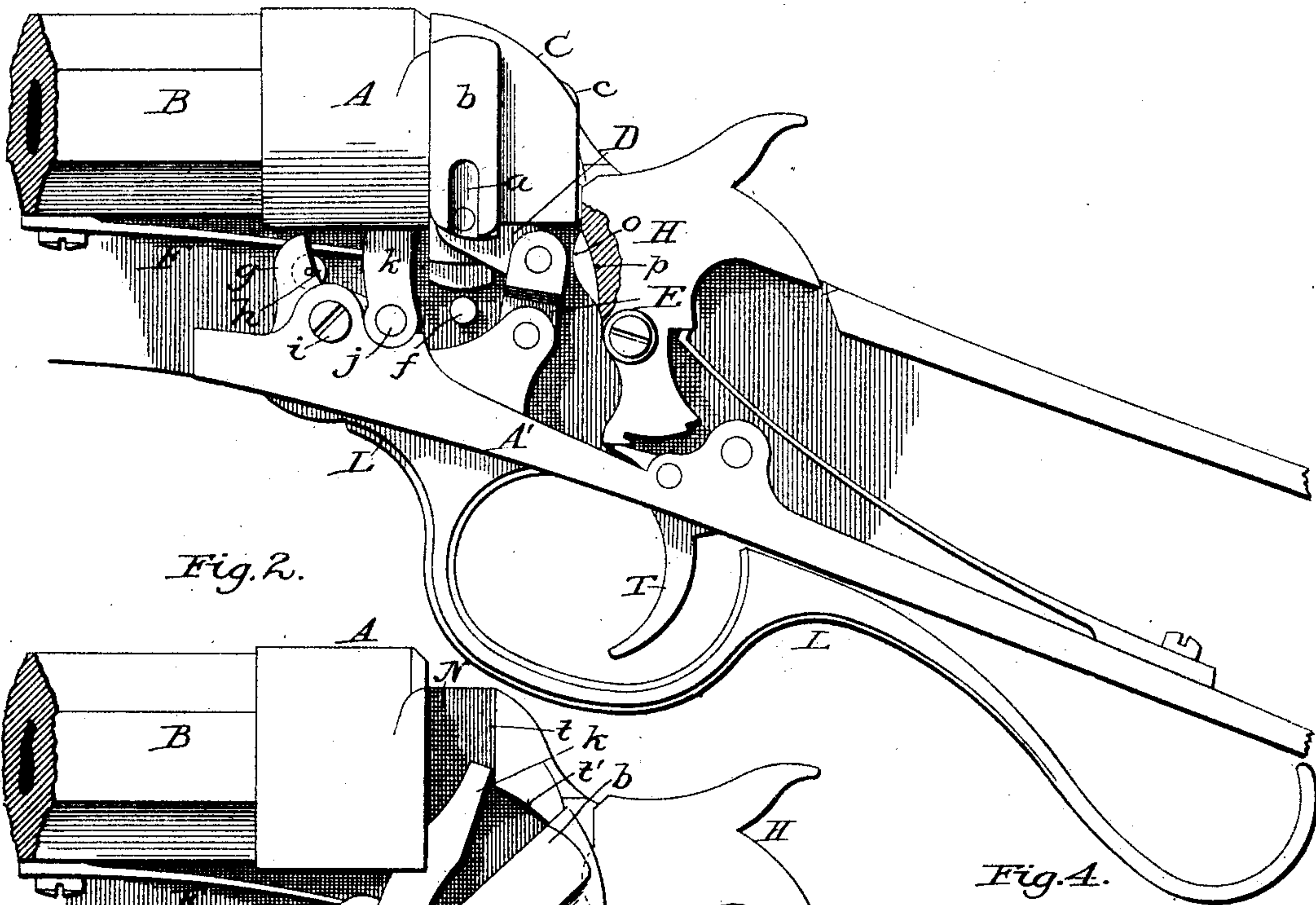


Fig. 2.

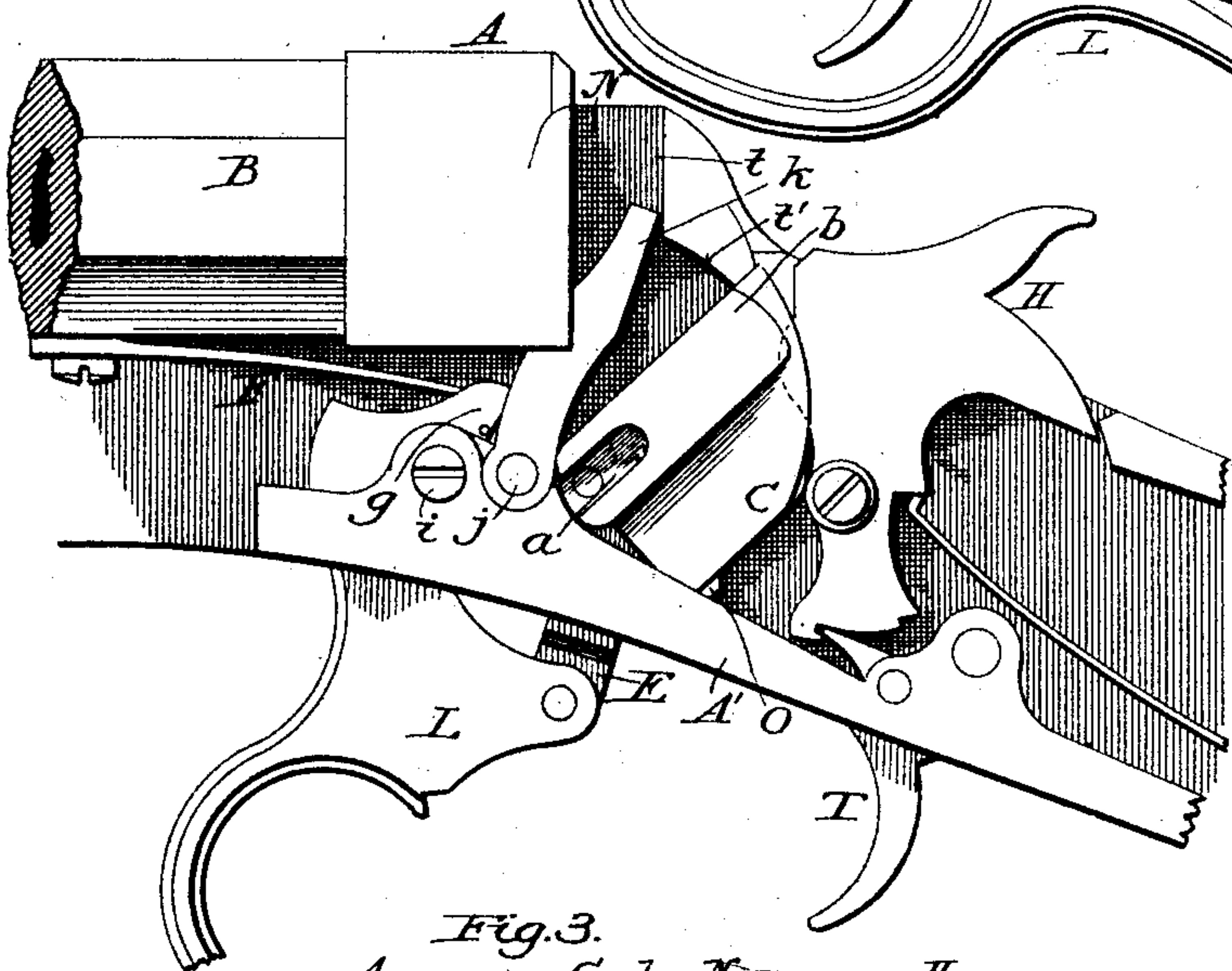


Fig. 3.

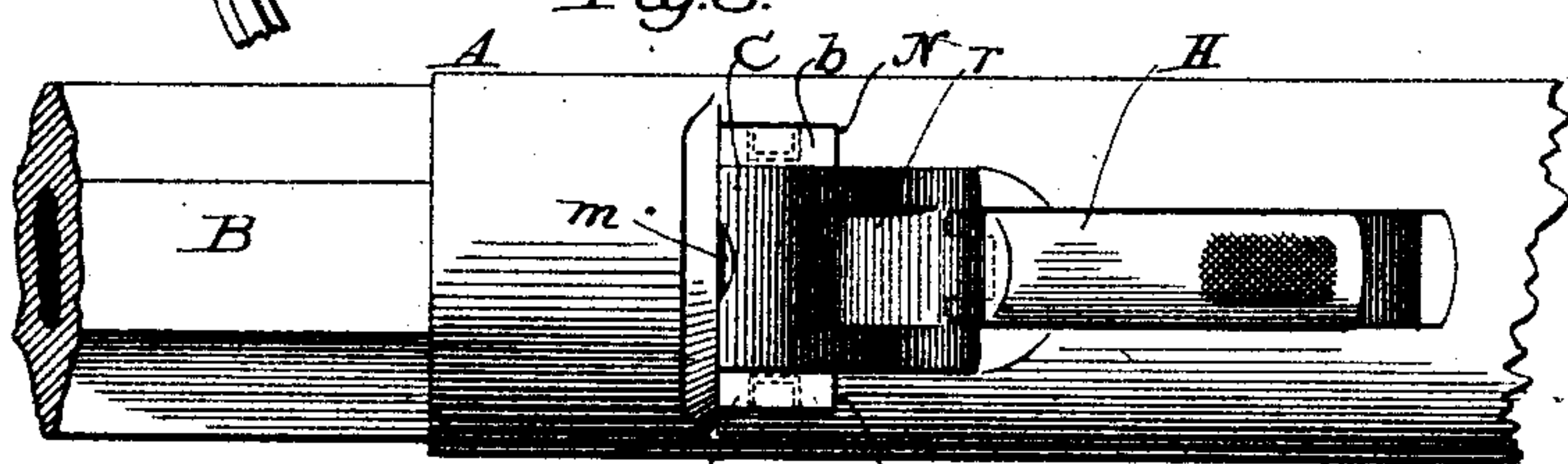


Fig. 6.

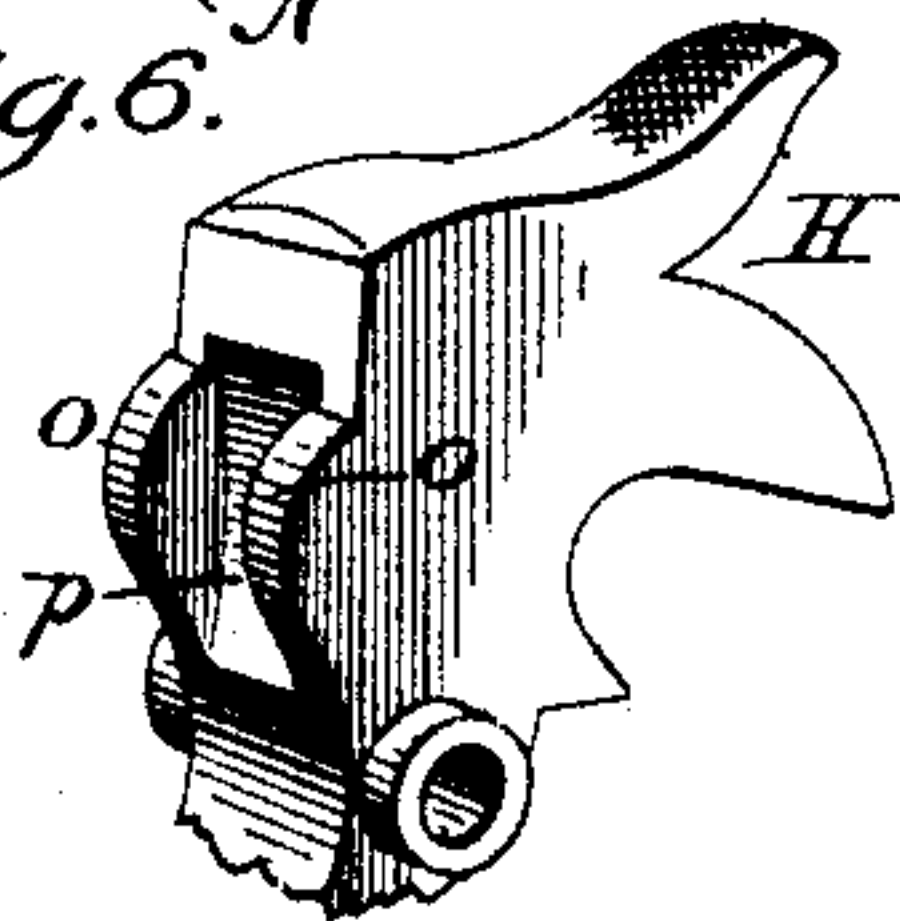


Fig. 4.

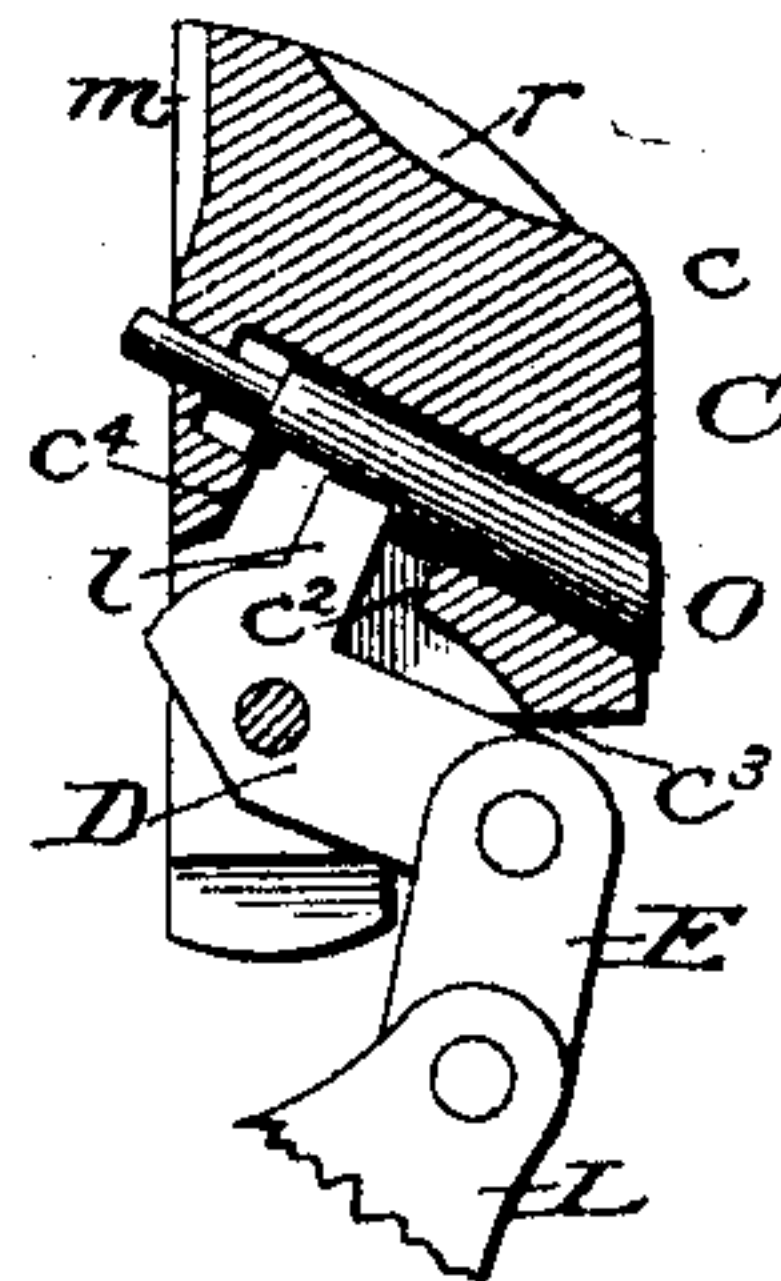
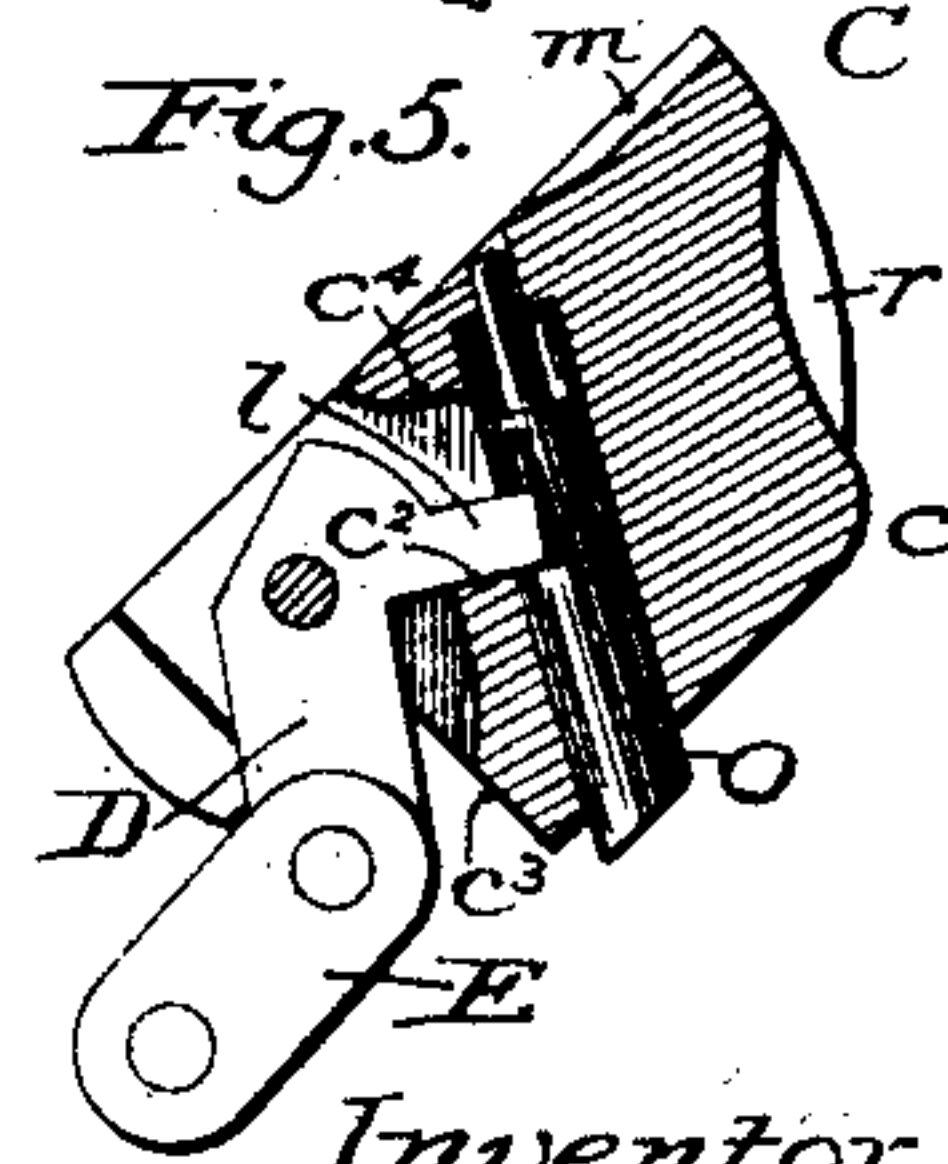


Fig. 5.



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UNITED STATES PATENT OFFICE.

LOUIS N. WALKER, OF ILION, NEW YORK, ASSIGNOR TO E. REMINGTON & SONS, OF SAME PLACE.

BREECH-LOADING GUN.

SPECIFICATION forming part of Letters Patent No. 354,452, dated December 14, 1886.

Application filed March 17, 1886. Serial No. 195,562. (No model.)

To all whom it may concern:

Be it known that I, LOUIS N. WALKER, of Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Breech-Loading Guns, of which the following is a specification.

My invention relates to breech-loading guns; and the invention consists in certain novel features, hereinafter more fully set forth.

Figure 1 is a side elevation with the front side removed to show the internal construction with the breech closed. Fig. 2 is a similar view with the breech opened. Fig. 3 is a top plan view; and Figs. 4, 5, and 6 are views of portions shown in detail.

I make my gun in its general form and appearance similar to the well-known "Remington rifle;" but instead of operating the breech-block by a thumb-piece I operate it by a guard-lever below.

In the accompanying drawings, A indicates the receiver, which is formed of a single solid piece, with the exception of the lower wall, A', usually termed the "guard-plate," which is made separate and secured to the side walls of the part A by screws, this plate A' being slotted for the reception of the guard-lever L, as represented in Figs. 1 and 2, and also for the trigger T.

The breech-block C is composed of a solid block of metal, as shown in Figs. 1 to 5, and is provided on each of its lateral sides with a laterally-projecting rib, b, corresponding in size transversely with recesses N, made in the inner faces of the side walls of the receiver, as shown in Figs. 2 and 3. In the lower ends of these ribs b, I form a slot, a, as shown in Figs. 1 and 2, in position to correspond with pins f, which project inward from the side walls—one being shown in Fig. 1—in such a position that when the breech-block is drawn down, as hereinafter explained, the shoulder at the upper end of these slots a will strike and rest on these pins f, which then form a fulcrum on which the breech-block rests as it is tipped over back, as hereinafter explained.

A central recess or slot is formed in the lower end of the breech-block C, as shown clearly in Figs. 4 and 5, in which is pivoted a link, D, the rear end of which is pivoted to another link, E, which has its opposite end pivoted to the lever-guard L, which latter is in turn pivoted on a screw, i, near its front

end, as shown in Figs. 1 and 2. The link D, as shown in Figs. 4 and 5, has an arm, l, projecting from its upper end nearly at right angles, and which extends upward in the central recess far enough to engage in a recess cut in the underside of the firing-pin O, for the purpose of retracting the latter as the breech is opened, it being shown retracted in Fig. 5, and forward or in the firing position in Fig. 4.

As shown in Figs. 4 and 5, there is left a solid abutment in the rear portion of the breech-block below the firing-pin and in rear of the pivot of the elbow-lever D, the lever D being pivoted in relation to this abutment in such a manner that when the firing-pin is retracted the arm l of the lever will bear against the front shoulder, c', of this abutment, as shown in Fig. 4, thereby locking the lever D in such a manner as to render it rigid in relation to the breech-block while the latter is being drawn down, and thereby assisting to tip or draw the breech-block over backward as soon as it is drawn out of the vertical recesses N. When the motion of the hand-lever L is reversed to close the breech, the main arm of the elbow-lever D will in like manner strike against the lower face, c'', of the abutment, as shown in Fig. 5, thereby rendering it rigid in relation to the breech-block while the latter is being raised, and tipping it forward into a vertical position, ready to have its ribs b enter the vertical recesses N again. It is obvious that the same result may be accomplished by making the recess in which the arm l of lever D moves to and fro of such a length that the arm l will strike alternately against the shoulders c' and c'' at opposite extremities of the recess in which the arm l moves, or that the arm D may in like manner be arranged to strike against shoulders or abutments provided in the breech-block on opposite sides of the arm D, it being a mere matter of choice with the manufacturer as to which of these plans shall be adopted.

The breech block C also has a small recess, m, formed in its front face, extending from the top downward to a point near the front end of the firing pin, as shown in Figs. 3, 4, and 5, this recess or groove being as wide or wider than the cap or primer used in the cartridge, so that in case the cap or primer should, by accident or otherwise, project beyond the face of the cartridge head it will not be hit by the

upper edge of the breech-block as the latter is moved upward in closing the breech, and which might cause a premature explosion. The length of the recess *m* is such that the face of the breech-block will not touch or press against the primer until the breech-block has been raised far enough to cover the bore of the barrel, so that if by any means the primer should be exploded thereafter no injury would result to the person holding the gun. At the same time by inclining the lower end of this recess *m* it will, as the block *C* is shoved up, operate as a wedge to force the primer into its seat, and by stopping the recess a short distance above the firing-pin a solid abutment is left opposite or in rear of the primer, when the breech is entirely closed, to hold the primer firmly in place at the instant of explosion.

The breech-block is also provided on its rear side with a rounded projection, *c*, as shown in Figs. 1, 4, and 5, for the purpose of pressing against the projections *o* on the front of the hammer *H* as the breech-block is drawn down, and thus at a certain time force the hammer back far enough to permit the point of the trigger or sear to engage in the half-cock notch, as shown in Fig. 2, there being a recess, *r*, as shown in Figs. 4 and 5, made in the top of the breech-block for the projections *o* of the hammer to rest in when the breech-block is thrown over back, as shown in Fig. 2, this recess *r* being of such a depth that when the parts are in the position shown in Fig. 2 the breech-block and the projections *o* on the hammer shall not be in contact.

The hammer *H*, as shown in Fig. 6, has the projections *o* on its front side, as above stated, and it also has a cavity or vertical recess, *p*, between these projections, the object of which latter is to afford room for the projecting rear end of the firing-pin *O* when retracted, to pass down in front of the hammer as the breech is opened without touching the hammer after it has moved past or away from the nose of the latter.

The recesses *N*, formed, as before stated, on the inner faces of the side walls of the receiver *A*, extend down to a point about on a line with the lower wall of the bore, the rear wall, *t*, of said recesses being vertical to that point, and from thence are curved backward in a semi-circle, as shown at *t'*, Fig. 2, to permit the top of the breech-block to swing over back when drawn down, so it will assume the position shown in Fig. 2, out of the way of the cartridge-shell.

The extractor *k* consists of a lever pivoted at its lower end, as shown in Figs. 1 and 2, and extends upward in a recess at one side of the barrel, and at a point opposite the central portion of the bore has an inwardly-projecting lip to engage under the flange of the cartridge in the usual manner.

The lever-guard *L* is provided at its front end with a vertical lug or arm, *g*, so located that when the lever has been moved far enough to move the breech-block out of the

way of the shell this arm *g* will strike against the extractor *k*, as represented in Fig. 2, and throw the latter over backward, thereby causing it to extract the shell. The relative length of the arm *g* and of the extractor *k* are such that a very sudden or quick movement is imparted to the latter, and it is thereby made to throw the shell entirely clear of the gun, especially if the gun be held horizontal or has its muzzle slightly elevated. At the same time if the shell sticks in the chamber the strong rigid extractor and arm *g* afford the means for bringing a very strong yet gradual force to bear on the shell until loosened, when the sudden movement of the parts will expel it from the chamber.

At or near its front end the lever-guard is also provided with a roller, *h*, as shown in Fig. 1, on which a spring, *F*, is arranged to bear, these parts being so arranged that the pressure of the spring will operate to hold the lever-guard, and consequently the breech-block, in their closed position, as shown in Fig. 1; but whenever the guard is thrown down far enough to bring the roller *h* backward past the center of motion of the guard *L*, (which in this case is the pivot or screw *i*, on which the guard turns,) then the force of the spring aids to open the breech and serves to hold it open, whatever the position of the gun may be.

With the parts thus constructed and arranged, it will be seen that the moment force is applied to the guard *L* to throw it down the rear end of link *D* will be drawn downward, thereby causing the arm *l* to force back the firing-pin *O* as soon as it begins to move the breech-block, and that when the link *D* has been moved on its pivot far enough to cause the arm *l* to bear against the solid wall of the breech-block, as shown in Fig. 5, the link *D* will be rendered rigid in relation to the breech-block, and they will thereafter move as one piece until the breech is opened. The continued downward movement of the guard will draw the breech-block directly down until the ribs *b* are drawn out of the vertical recesses *N*, at which time the upper walls of the slots *a* in the sides of the block will strike upon the pins *f*, when the further movement of the guard, operating through links *E* and *D* upon the rear part of the breech-block and in rear of the pins *f*, will instantly draw the top of the breech-block over backward to the position shown in Fig. 2, at the same time operating the extractor, as before explained. It will thus be seen that although the breech-block has a compound movement—first down and then over backward—this movement is all effected by a single downward movement of the lever-guard, and it is effected so quickly as to make it difficult to distinguish between the downward and backward movements of the breech-block. Just at the instant the block has descended far enough to begin to tip, the projection *c* thereon is brought to bear against the projections *o* on the front of the hammer, thereby forcing the

latter back to the half-cock, as before stated.

As the motion of the lever-guard is reversed the link E is first moved, carrying the rear end of link D upward until it or the end of link E, or both, rests against the under side of the block, near its rear edge, as shown in Fig. 4 (at the same time throwing the arm *l* forward and releasing the firing-pin) thereby rendering the link D rigid in relation to the breech-block, when the further movement of the lever-guard will first tip the breech-block over forward to a vertical position and then force it bodily upward to the position shown in Fig. 1, thus closing the breech.

As shown in Fig. 3, the breech-block C is held securely in place not only by the ribs *b*, which bear against the walls *t* of the recesses N, but by its rear face also, which abuts against the shoulders on each side of the hammer in the top wall of the receiver. It is, however, obvious that the ribs are sufficient without this latter bearing. It will of course be understood that, as shown in Figs. 4 and 5, the recess in the firing-pin will be of sufficient length to permit the necessary movement of the latter to ignite the charge without touching the arm *l*. It is obvious that instead of the recess a slot may be cut through the firing-pin and the arm *l* be extended through or into the same; but the plan shown is simpler in construction and equally effective. So, too, it is obvious that instead of the slots *a* and the pins *f* any other form of stop may be substituted to serve as a fulcrum or pivot on which the breech-block may strike when drawn down, the only requisite being that the stop or rest on which the breech-block strikes shall be in front of the link E, so that the force brought upon the breech-block through said link will tend to pull or tip the block over backward as soon as the block comes in contact with the stop. For instance, the lower end of the ribs *b* may be made pointed, of V shape, or rounded, and brought to bear on correspondingly-shaped ribs or projections properly located on the side walls of the receiver, or the front lower corner of the breech-block itself may be made to come in contact with suitable stops or projections on the side walls of the receiver, or with the guard-plate A', or with a projection thereon, these being mere modifications in the mechanical details, which will be obvious to any one skilled in the art, and all operating on the same principle and producing the same result—viz., to throw the top of the breech-block over backward, as shown in Fig. 2.

It will be observed that the top or upper end of the ribs *b* are slightly curved or rounded, so that they will slide freely along the curved wall *t'* as the lever is brought up to close the breech, and the rear upper corner may be slightly beveled or rounded off to enable the ribs to more readily enter the recesses N as the breech is closed.

While I have shown the recesses N as extending down on a line with the bottom of the

bore, it will of course be understood that they may be longer or shorter, according to the distance the breech-block moves vertically, the only requisite in that respect being that the combined vertical and tipping movement of the breech-block shall be sufficient to uncover the bore of the barrel and permit the insertion and removal of the cartridge or shell.

As shown in Figs. 1, 2, and 6, the top of the hammer is so inclined backward that when at half-cock, as shown in Fig. 2, it is nearly horizontal, so that the shell, which impinges upon it as it is thrown out, passes readily over it. By this construction I am enabled to produce a strong and efficient arm, simple of manipulation and not liable to get out of order.

I am aware that guns have been patented in which the breech-block is arranged to have a downward and backward movement, and also that various plans have been devised for retracting the firing-pin, and therefore I do not claim either of these features, broadly; but

What I do claim is—

1. The combination of the receiver A, having on the inner face of its side walls the vertical shoulder *t* and the curved shoulder *t'*, with the breech-block C, provided with the laterally-projecting ribs *b*, the operating-lever L and links E D, and the pins *f*, or an equivalent stop to tip the breech-block when drawn down, the said parts being arranged to operate substantially as shown and described.

2. The breech-block C, provided with the firing-pin O, in combination with the elbow-lever D, pivoted in a recess in said block, substantially as shown and described, whereby the firing-pin is retracted and the lever is rendered rigid in relation to the breech-block in its movement up and down, as and for the purpose set forth.

3. The breech-block C, provided with the shoulder or projection *c*, in combination with the hammer H, provided with the curved shoulders or projections *o*, and the vertical recess *p*, arranged to operate substantially as and for the purpose set forth.

4. The breech-block C, provided with the shoulders *c*² and *c*³, or their equivalents, in combination with the elbow-lever D, pivoted thereto, and arranged to engage with the shoulders on opposite extremities of the lever in its alternate movements, substantially as shown and described.

5. The combination, in a gun, of the breech-block C, having the firing-pin O seated therein, the pivoted links D E, the pivoted extractor *k*, and the lever L, pivoted to the receiver in front of the extractor, and provided with the arm *g*, arranged in line with the extractor, said parts being constructed and arranged to operate substantially as shown and described.

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Witnesses:

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