D. B. WESSON.

Breech-Loading Fire-Arm.

No. 78,847. Patented June 9, 1868.

Fig. 1.

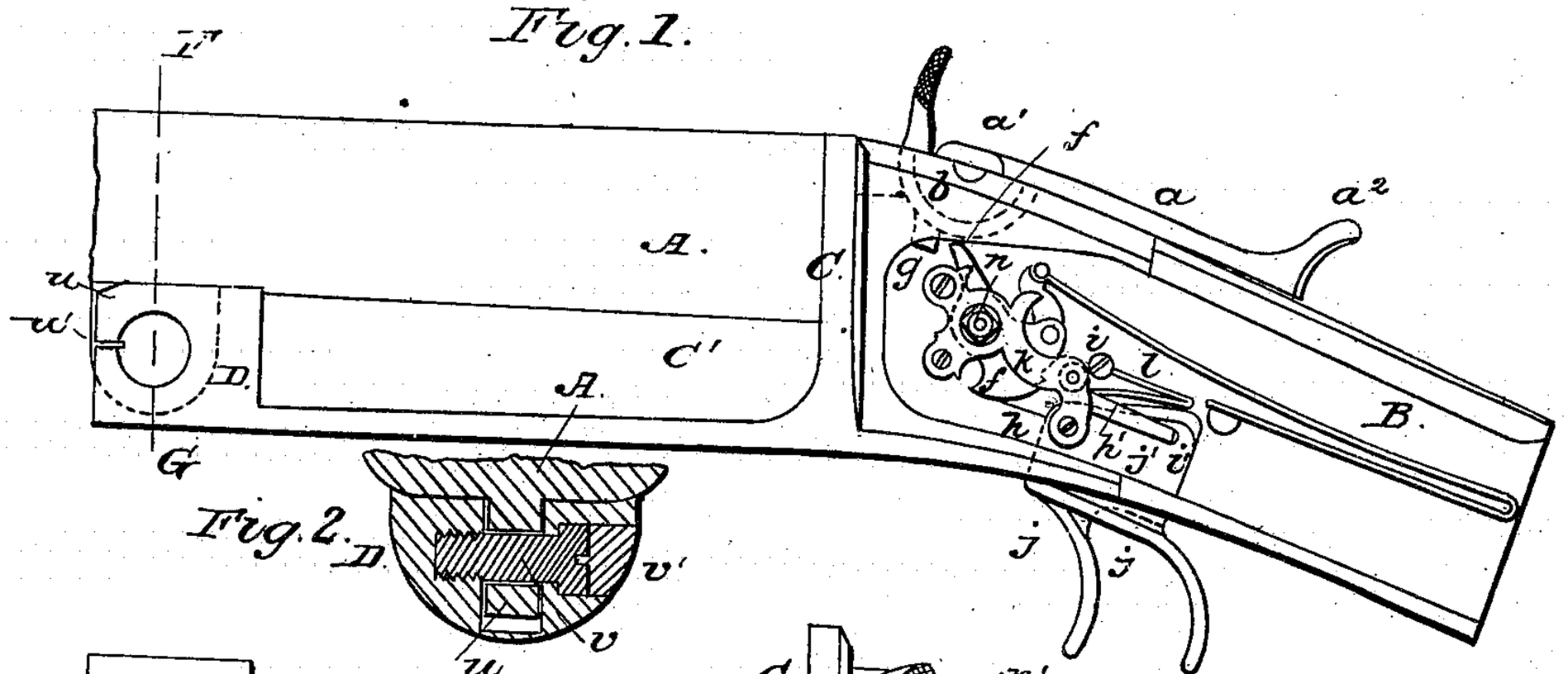


Fig. 2.

Fig. 3.

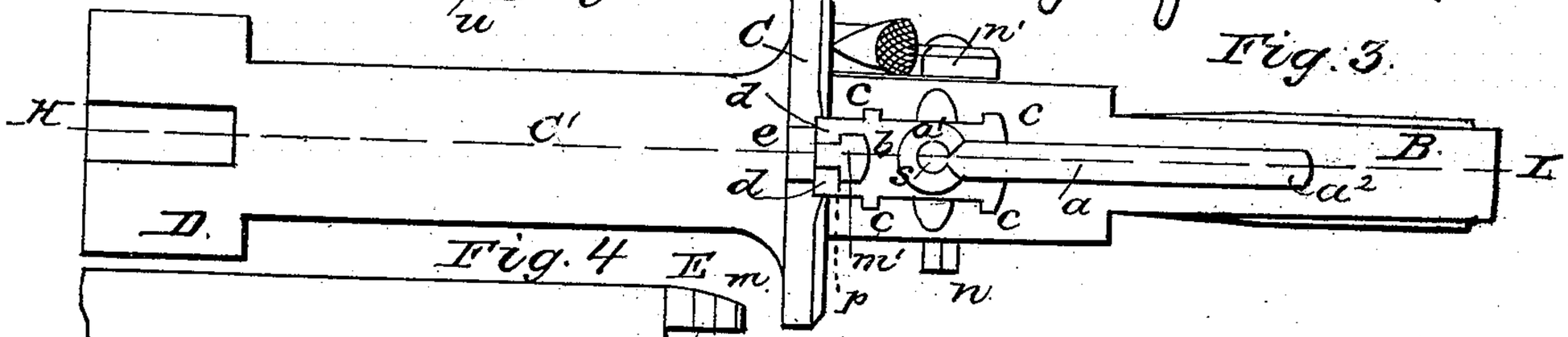


Fig. 4

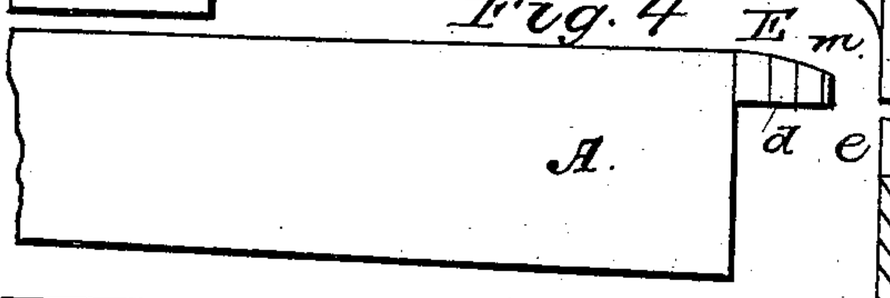


Fig. 5.

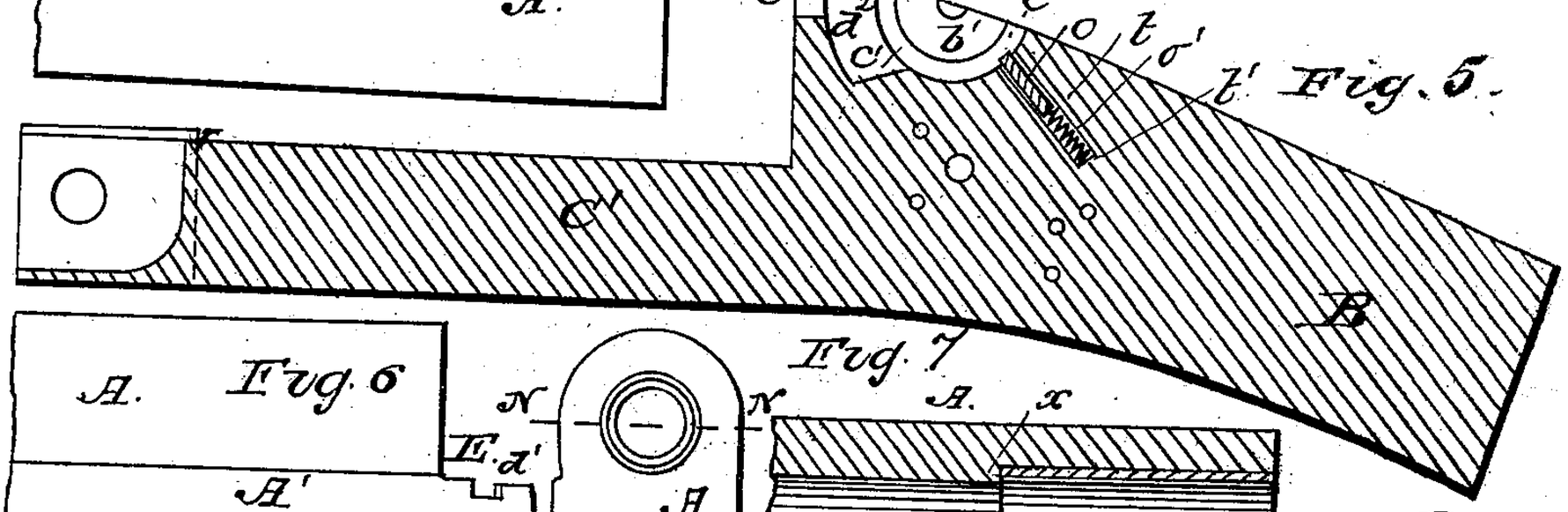


Fig. 6

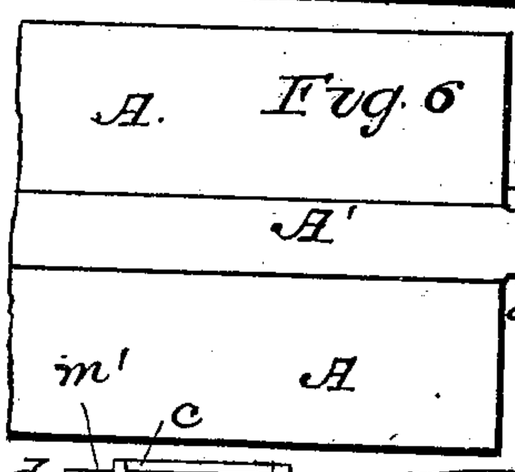


Fig. 7

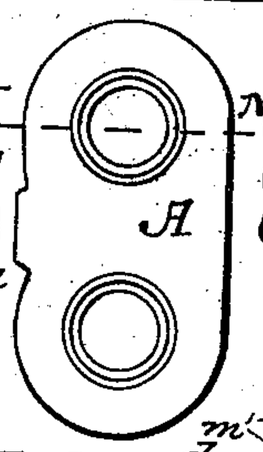


Fig. 8.

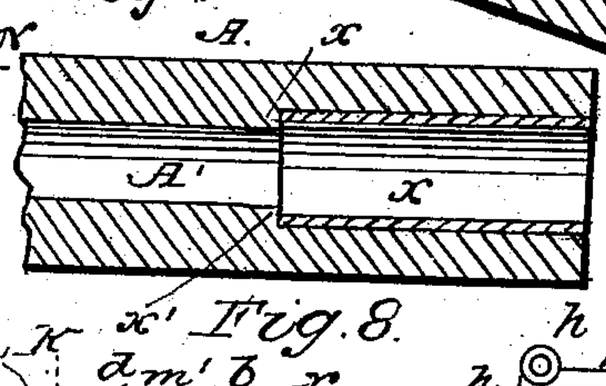


Fig. 14

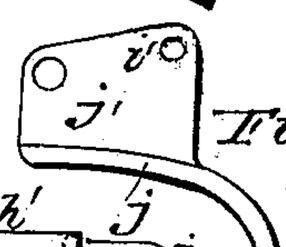


Fig. 15.

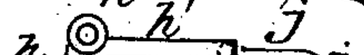


Fig. 16.

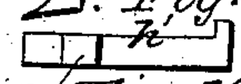


Fig. 9

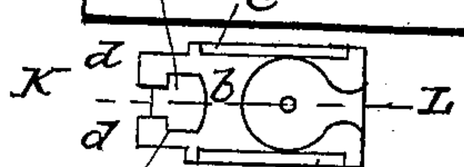


Fig 10

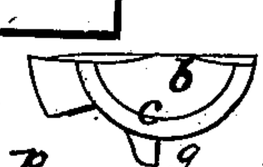


Fig. 11

Fig 12.

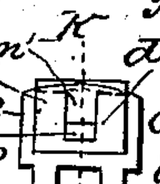
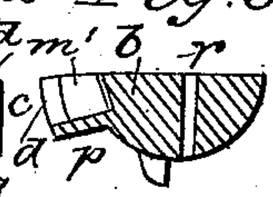


Fig. 13



Witnesses
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T. A. Curtis

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United States Patent Office.

D. B. WESSON, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO WESSON FIRE-ARMS COMPANY, OF SAME PLACE.

Letters Patent No. 78,847, *dated June* 9, 1868.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, D. B. WESSON, of Springfield, in the county of Hampden, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation of the frame of said fire-arm, and the operative parts attached thereto, and of the barrels, the latter being shown as broken off beyond the frame, and the nearer hammer being removed to show parts of the lock beneath it.

Figure 2 is a section of the frame, through the line F G, fig. 1.

Figure 3 is a plan view of the frame and appurtenant parts, the barrels being removed.

Figures 4 and 6 are respectively a side elevation and plan view of the breech of the barrels.

Figure 5 is a longitudinal vertical section through the line H I, fig. 3, the block being removed.

Figure 7 is an end elevation of the breech of the barrels, and

Figure 8 is a longitudinal vertical section through the line M N, fig. 7.

Figure 9 is a plan view of the movable metallic block, which operates in connection with a recessed projection upon the barrels to secure or lock the rear end of the latter to the frame in position for firing.

Figure 10 is a longitudinal vertical section, through the line K L, fig. 9.

Figure 11 is an end elevation of said block, showing the end which is farthest from the barrels.

Figure 12 is also an end elevation of said block, showing the end which engages with the projection upon the barrels.

Figure 13 is a longitudinal vertical section, through the line K L, fig. 12.

Figure 14 is an elevation of the trigger.

Figure 15 is a side elevation, and

Figure 16 is a plan view of the "sere" or pawl which engages with the notches in the tumbler.

The nature of my invention consists—

First, in the means of securing or locking the breech (or loading-end) of the barrels in place in the frame of the gun, the devices for effecting which are so constructed and arranged that they not only lock the breech to the frame in position for firing, and disengage it for reloading, but they also resist and prevent any forward movement of the breech relatively to the frame or stock, as well as any upward movement of the same, and may also be so constructed as to exert both a downward and backward force or draught upon the breech.

Second, in the construction of the tumblers and of said movable block, in such a manner that they co-operate to raise the hammers to the position known as "half cock," at the same time that the end of the barrels is disengaged from the movable block.

Third, in a certain construction and arrangement of the sere and trigger, whereby the pressure of the sere-spring is transmitted to the trigger, and the looseness and play of the latter are prevented, while the trigger-spring usually employed is dispensed with.

Fourth, in lining the cartridge-chambers of a breech-loading fire-arm with non-corrosive metal, for the purpose of preventing injury and deterioration of the inner surface of the chamber from corrosion.

It will be seen that the two points last named are independent in construction and operation of the devices specified before them, and also of one another, and, moreover, that my said invention, which, as herein illustrated and described, is applied to a double-barrelled breech-loading gun, is equally applicable, with slight and obvious changes of detail, to single-barrelled fire-arms of the breech-loading class.

The construction of my invention is as follows:

The iron "frame," as it is termed, figs. 1, 3, and 5, consists of the breech-plate C, near the middle of the length of the frame, the part B behind the plate, which supports the different parts of the lock, and the part C′,

which extends beneath the barrels, and terminates in an enlarged and slotted portion, D, which receives the ear *u*, by which the barrels are pivoted to the frame, as shown in fig. 2. The barrels A A, having the angular space between them covered by the rib A^1, turn upon the screw-bolt U as a fulcrum, and the centre of motion is thus located so far below the barrels that the plane of the rear end of the barrels is parallel to the face of the breech-plate C, when the former are locked in place for firing. The general form and appearance of fire-arms to which my invention is applied are substantially the same as in guns of the same class as heretofore constructed, and most of the operative parts are the same, with the changes hereinafter stated.

The first part of my invention, as before classified, is constructed and operated as follows: At the rear end of the barrels is formed the rigid projection E, the upper surface of which is bevelled, as shown, to conform to the outline of the frame at the joint.

The corresponding grooves *d*^{1} *d*^{1}, figs. 4 and 6, are cut upon the opposite sides of the projection; said grooves being rectangular in transverse section, and the sides of each groove being curved, so as to be or to approximate to arcs of concentric circles, the centre of which circles is in the axis of the movable block. A slot, *e*, fig. 5, is cut in the breech-plate to allow the projection E to descend.

The body of the movable block *b*, which is co-active with the projection E, is in the form of a portion of a cylinder, (nearly a semi-cylinder,) from the curved surface of which spring the similar ears *g g*, and also the part *d*, in which is formed the recess *m'* for receiving the end of E. The similar curved flanges *c c*, on each end of the block *b*, serve as guides to control the motion of the block within the recess *b'* in the frame, the sides of these guides being arcs of circles, the centres of which are in the axis of the semi-cylindrical block *b*. Channels, *c' c'*, are cut in the opposite sides of the recess *m'*, and serve as ways in which the guiding-flanges *c c* slide, being made in the same curve.

The recess in the frame is also extended at *d*^{2}, to receive the part *d* of the block, and allow it to be depressed far enough to clear the projection E on the barrels. It is evident that the block *b*, thus arranged in the frame, will have a rotary motion within certain limits, and that the axis of this rotation will coincide with the axis of the cylinder, of which the block *b* is a part.

To prevent the block from rotating too freely, a friction-pin, *o*, fig. 5, is inserted in the hole *t* in the frame, and pressed outward by the spiral spring *o'* beneath it. A slight depression may be made in the curved surface of the block, at the point where the friction-pin meets it, when the barrels are locked in place, so as to produce a slightly increased resistance to any movement of the block from the locking position. The form of the recess *m'* in the block is shown in figs 9, 12, and 13, the lips *d d* being curved, so as to enter the recesses *d*^{1} *d*^{1} in the projection E, and the inner and outer edges of *d d* being arcs of circles, whose centres are in the axis of the block. If the curved sides of the recesses *d*^{1} *d*^{1}, in the projection E, are exact arcs of circles, whose centres are also in the axis of the block, the lips will not only enter the recesses and hold the breech down to the frame in position for firing, but will also resist any forward movement of the rear end of the barrels away from the breech-plate C and the frame or stock. If the latter arcs are described with a slightly longer radius, or from a centre slightly above the axis of the block, the effect of the block and projection E, when engaged together, will be not only to lock the breech to the frame, and prevent any forward or upward movement of the breech, but also to exert a force or draught upon the breech in a downward and backward direction. And it will be seen that this downward and backward draught may be increased or lessened by a very slight variation of the form of the curved engaging parts.

To rotate the block, one end of the rod *a*, which I denominate a lever, is attached to the upper side of the block by the screw *s*, and the other end is turned at an angle at *a*^{2}, to form a thumb-piece for lifting the lever. By raising the rear end of the lever, the block can be rotated so far as to clear the projection E upon the barrels, and leave the latter free to be tilted upward for loading or cleaning. When the breech of the barrels is again depressed, so as to rest upon the frame beneath in position for firing, it can be locked in that position by drawing the lever *a* downward, when the block will rotate back to its former position, and the curved lips *d d* upon it will enter and engage with the curved notches in the projection E, and, when fully entered, the upper surfaces of the block and the projection will be in line, and the latter cannot be disengaged or the barrels tilted without first pushing up the lever *a*, and thereby rotating the block. It is, moreover, obvious that the block, instead of rotating, as shown, may be arranged to rotate in a plane at a right angle, or nearly so, to its present plane of rotation, in which case the lever *a* would be pushed sidewise, for disengaging the barrels, instead of upward, and the position of the engaging parts would be changed accordingly, while their relative action would remain the same; and also that a block working in channels or ways formed in the frame of the gun, and having, instead of a rotary motion, a rectilinear motion upward, and inclining away from the line of the axis of the barrels, when locked, may be used with substantially the same effect as the rotating block, the engaging-lips *d d*, and recesses *d*^{1} *d*^{1} being shaped accordingly.

I believe a movable block in the frame of a breech-loading fire-arm, so arranged as to engage with a projection upon the barrel or barrels, and co-acting with such projection, not only to secure the breech of the barrel or barrels to the frame, but to resist and prevent any forward or upward movement of the breech relatively to the frame or stock, and also, if required, to draw the breech downward and back relatively to the frame or stock, substantially as described, to be new and valuable in the construction of breech-loading fire-arms, and to possess important advantages over the locking-arrangement generally used, which does not resist any tendency to the forward movement of the barrels away from the frame or stock, and over the arrangement of a spring-catch mounted on the tang of the breech-plate, and taking into a notch in the upper part of the barrels, or a projection thereon, as set forth in Letters Patent, No. 50,432, granted to Westley Richards, October 10, 1865.

For purposes of safety and convenience, it is desirable that the hammer should be raised to the half-cock, and there held when the rear end of the barrels is raised from the frame for reloading, and until the breech is

locked in place; and this I accomplish by means of the ear *g*, formed upon the block *b*, and acting on the dog *f'*, formed on the tumbler *f*. When the lever *a* is raised, and the block turned, the ear *g* meets the dog *f'* and carries it back, and thereby revolves the square-headed shaft *n'*. The hammer *n* being fitted to this shaft, is also carried back to the half cock by the pressure of the ear *g*, and held by the sere-nose *h*, which acts as a pawl, working in the tumbler-notches. The limited motion of the block raises the hammer only to the half cock, and until the block is turned back to the locking position the hammer cannot be lowered so as to reach the breech-plate, or strike the cartridge, as the ear will come in contact with the dog upon the tumbler, and thus render the trigger inoperative to let the hammer down upon the cartridge. If the gun be double-barrelled, ears will be formed upon the block to meet the dog upon each tumbler, and both hammers will be raised at the same time, and to the same point.

Instead of the trigger-spring usually employed to maintain a slight pressure upon the trigger, and prevent unnecessary play of the latter in the slot through which it enters the frame, I employ the pressure of the sere-spring *l* for the same purpose. This I effect by forming a projection, *i*, upon the end of the sere *h*, (figs. 15 and 16,) and by making an opening, *i''*, in the plate *j'* of the trigger *j*, (fig. 14,) to receive the projection *i*. The downward pressure of the spring *l* upon the sere will thus be imparted to the trigger, and the play of the latter will be prevented without the use of the usual trigger-spring, thus simplifying the construction and operation of the lock.

The inner surface of the cartridge-chamber X, (figs. 7 and 8,) if unprotected, is liable to become corroded and roughened by the gases evolved in firing and from neglect, and the insertion of the cartridge and the withdrawal of the shell after firing are thus rendered difficult. To obviate this, I increase the diameter of the bore at the part which is enlarged for a cartridge-chamber sufficiently to allow of the introduction of a hollow cylinder, of copper or other non-corrosive metal, the length and inner diameter of which are those of the desired cartridge-chamber. This cylinder is then soldered, or otherwise fastened firmly in place within the enlarged bore as a bushing, and from its nature will retain a smooth and polished inner surface after use, and be comparatively free from oxidation and deterioration. I do not, however, claim as new, forming a lining for the cartridge-chamber by means of electro-plating, or any like means.

The cap (fig. 2) for covering the head of the screw-bolt or pivot *v*, upon which the barrels turn or tilt, in guns of the class described, is shown in fig. 2. As heretofore constructed, the pivot *v* is made of such length that the shoulder of the slotted head bears upon the outside of the frame D, and is shaped to correspond with the outside of the frame against which it bears. Where it becomes necessary, from the wearing of any of the parts shown in fig. 2, to turn up the screw *v*, the head, being shaped to conform to a certain position, will leave an angular projection on one side when turned, which is unsightly in appearance and inconvenient in use. I therefore make the opening in the frame large enough to allow the screw-head to enter the frame a sufficient distance, and then close the opening by the cap *v'*, the outer surface of which is shaped to correspond with the contour of the frame at that point, and is held in place by the set-screw *u'*. By this method of construction, the screw-head is made flat, and by removing the cap, can be turned at any time, and to any position, without injury to the appearance or utility of the fire-arm.

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

1. The metallic block *b*, and the recessed projection E, upon the breech or loading-end of the barrel or barrels, when constructed, arranged, and operating substantially as and for the purposes set forth.

2. The described construction and arrangement, in reference to each other, of the block *b* and tumbler *f*, whereby the hammers shall be raised to the half cock in the operation of releasing the breech from the frame, substantially as described.

3. The projection *i*, upon the sere *h*, in combination with the opening *i''* in the plate *j'* of the trigger *j*, substantially as and for the purpose specified.

In witness whereof, I have hereunto set my hand, this 19th day of November, A. D. 1867.

D. B. WESSON.

Witnesses:

J. P. BUCKLAND,

T. A. CURTIS.