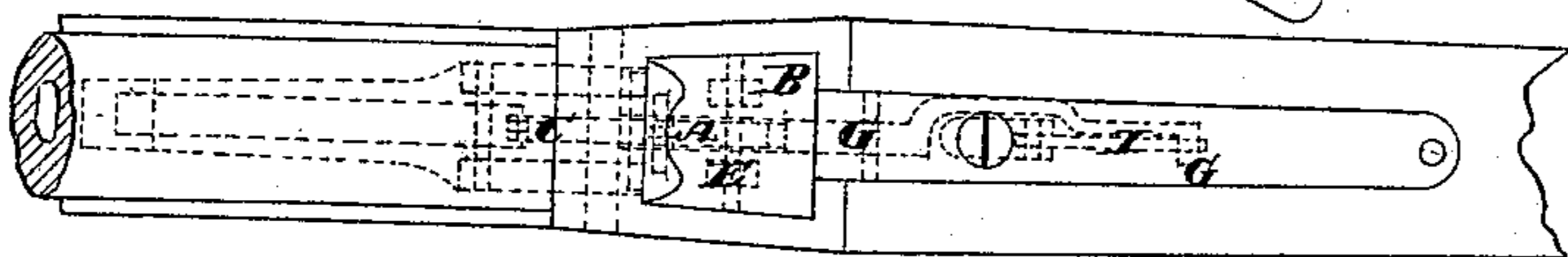
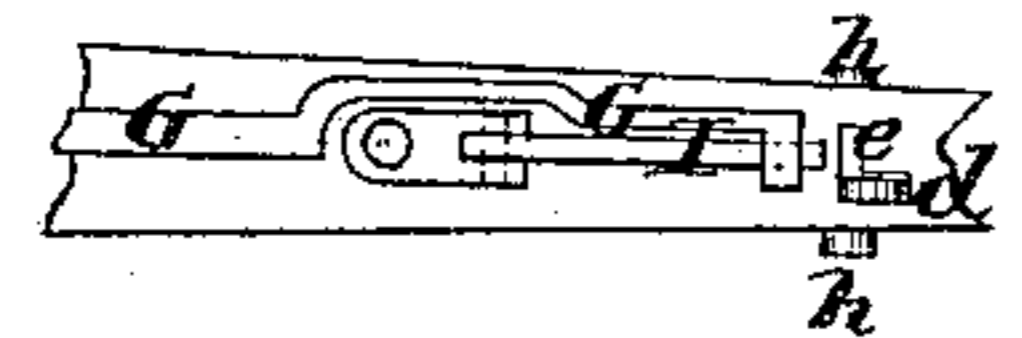
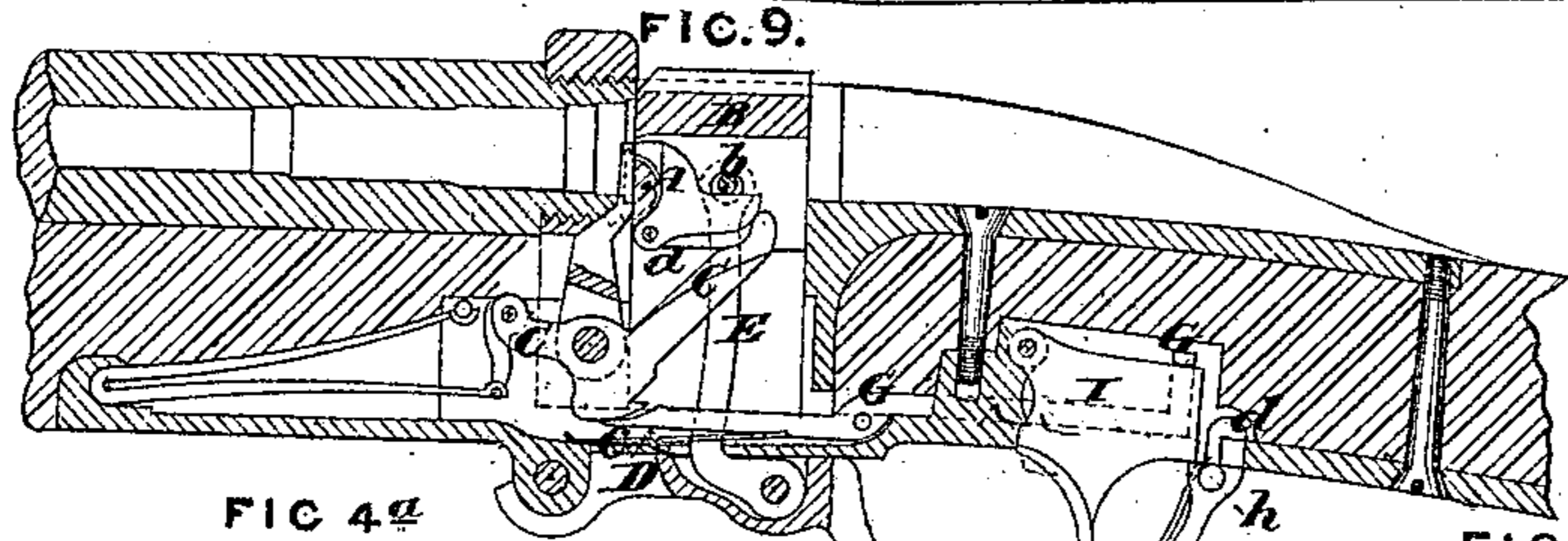
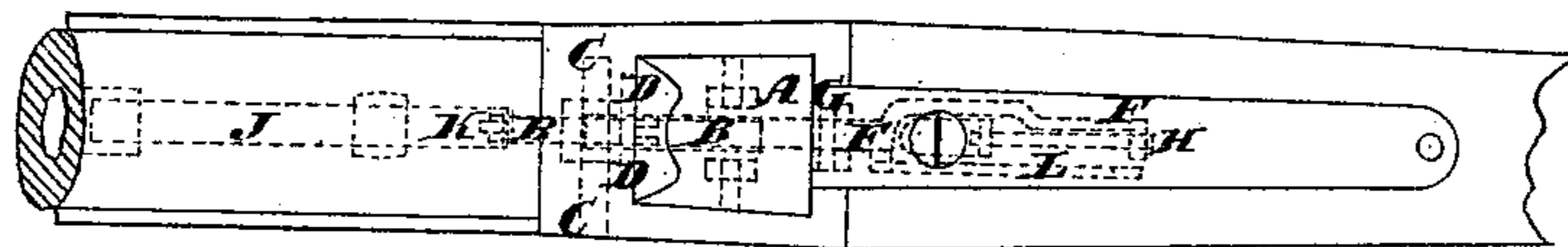
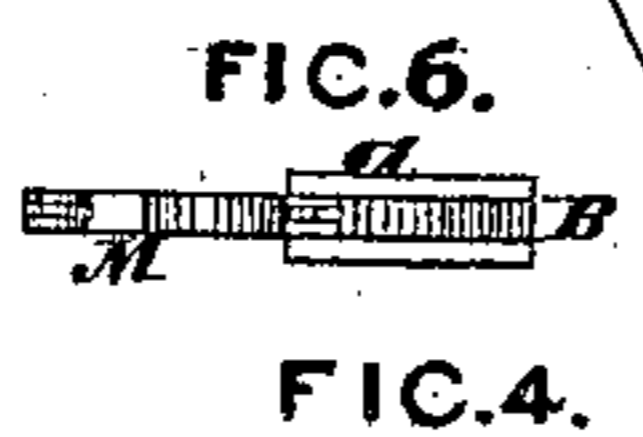
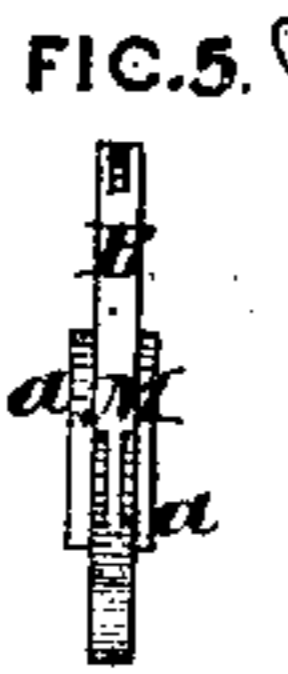
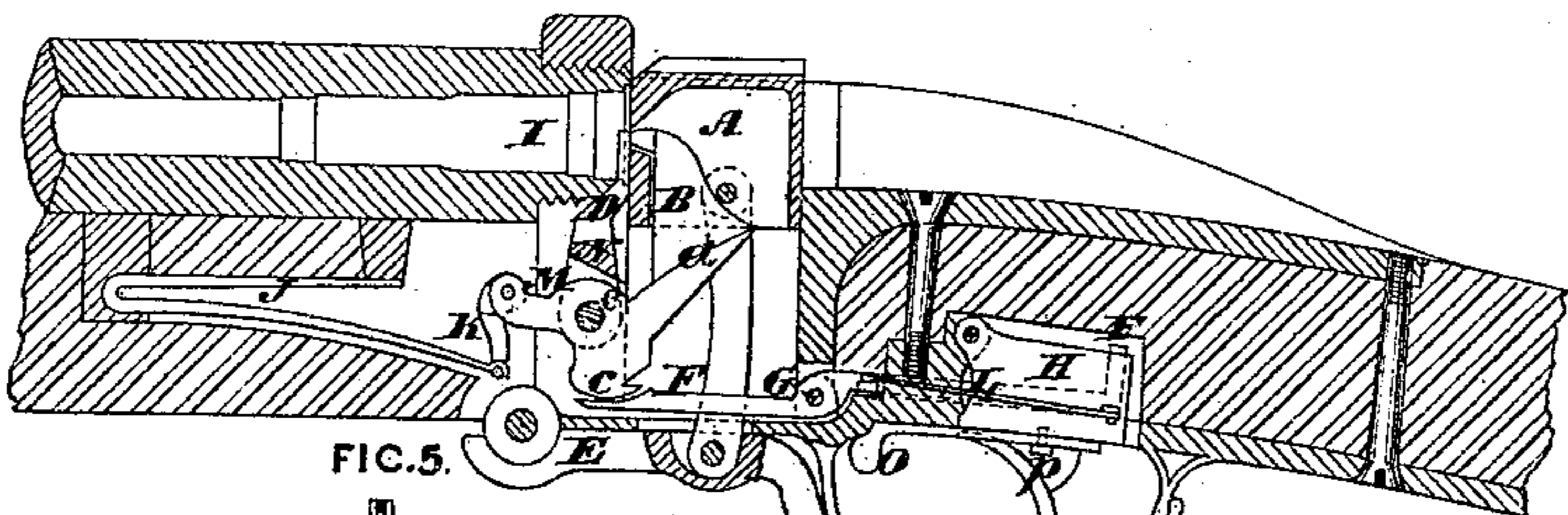
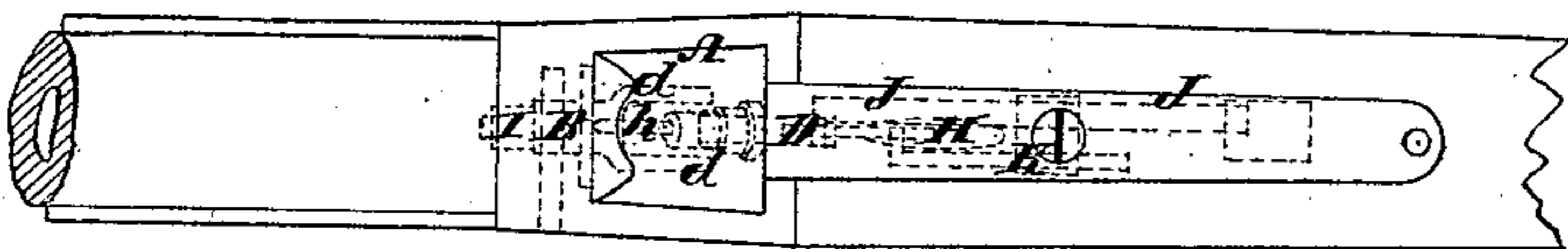
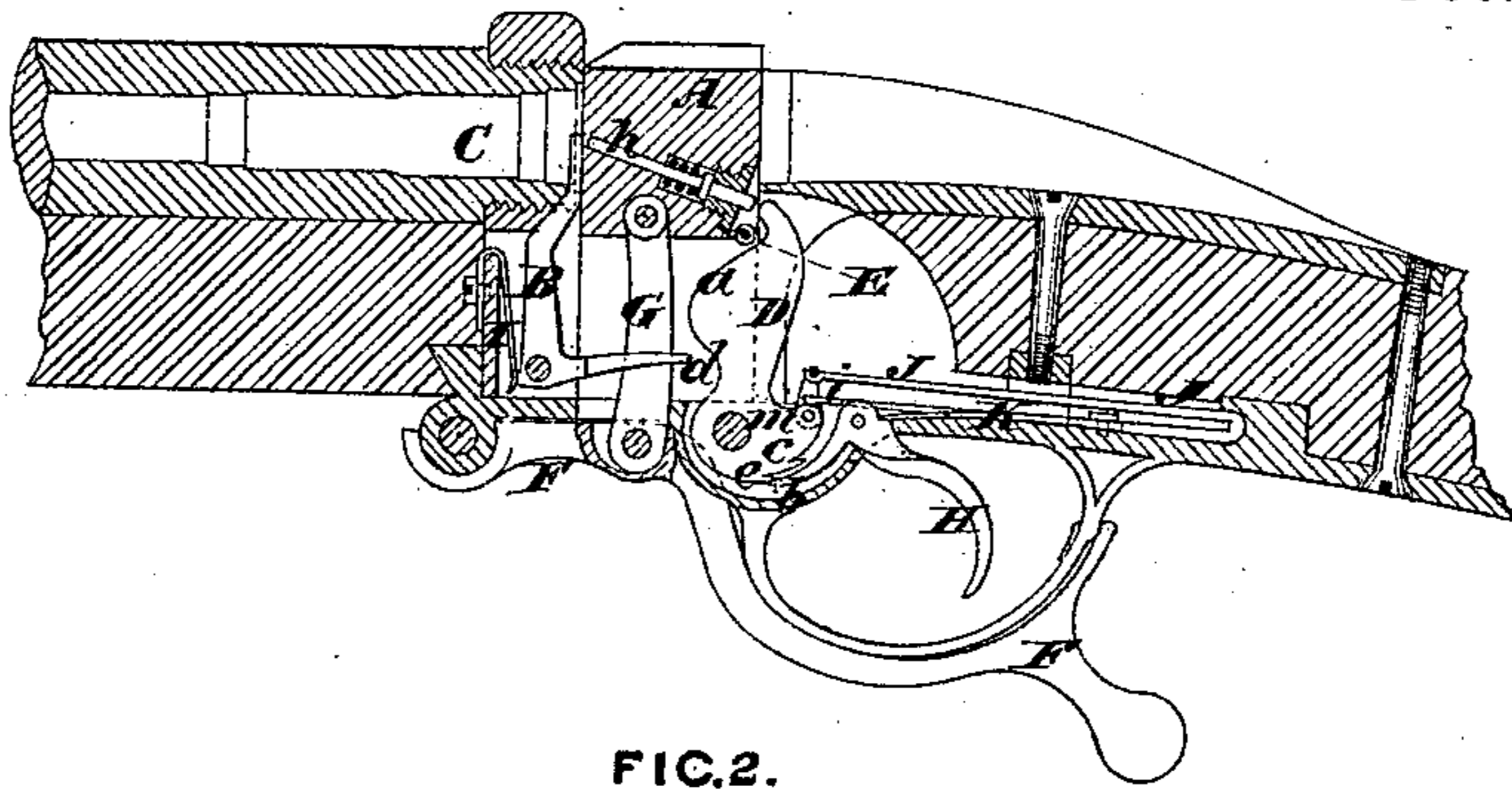


**A. HENRY.**  
**Breech-Loading Fire-Arms.**  
 No. 145,944. FIG.1. Patented Dec. 30, 1873.



*Attest,*  
*Alexander Brown*  
*John Brown*

*Inventor,*  
*Alexander Henry*

# UNITED STATES PATENT OFFICE.

ALEXANDER HENRY, OF EDINBURGH, SCOTLAND.

## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 145,944, dated December 30, 1873; application filed July 5, 1873.

*To all whom it may concern:*

Be it known that I, ALEXANDER HENRY, of Edinburgh, in the county of Mid-Lothian, North Britain, have invented certain new and useful Improvements in Breech-Loading Fire-Arms, of which the following is a specification:

This invention relates to improvements in that class of fire-arms wherein a vertically-sliding breech-piece is employed, the act of depressing or elevating which simultaneously operates the extractor and cocks, or throws up into firing position the hammer or striker.

The invention consists, mainly, first, in cocking the hammer by means of the bottom of the vertically-sliding breech-piece acting on curved feathers or projections on the hammer, or on the breast of the hammer itself, the cocking being effected in this way by the breech-piece alone; second, in operating this extractor by means of the outer end of the hammer or tumbler acting on an inclined plane on the extractor, as hereinafter described.

To enable my invention to be fully understood, I have represented in the drawings several ways in which the same may be carried into effect.

Figure 1 is a vertical section, and Fig. 2 a plan, of a portion of a breech-loading fire-arm, showing the breech action, and wherein a vertically-sliding breech-piece, A, is employed, the act of depressing that which operates the extractor B, and cocks or throws up into firing position the hammer or striker D.

Under this modification of my invention the breech-piece A is preferably provided with a roller, E, situated on a pin or stud attached to the lower part of the breech-piece, as shown, and the hammer or striker D is formed with a curved breast, *a*, against which the roller E bears, and as the vertically-sliding breech-piece is depressed by the lever F and link G, the hammer or striker D is pushed back into the "full-cock" or "half-cock" position, in either of which positions it is retained by the point *b* of the sear or trigger H entering the full-cock or half-cock bent or notch *c* or *c'*. When the hammer or striker D has been thus cocked, the roller E, at the lower part of the breech-piece A, passes out of contact with the breast *a* of the hammer or striker, and on the breech-

piece being further depressed by the lever F, the under side thereof comes in contact with the toes *d* of the extractor B, which it operates in the manner now well understood. When the lower part of the breech-piece A is elevated from contact with the toes *d*, after effecting the aforesaid operations, the extractor is returned to the position shown at Fig. 1, by the action of a plate-spring, I, attached to the front wall of the breech-chamber. A double mainspring, J, is used with the action hereinbefore described, to effect the operation of throwing forward the hammer against the rearward end of the piston *h*, and so igniting the cartridge, and to draw back the hammer from contact with the piston after it has been fired. A separate spring, K, is provided for the sear or trigger H. The hammer or striker D may be raised to full-cock or half-cock independently of operating the whole breech action by projecting the axis *m* of the hammer to the outside of the fire-arm, and placing thereon a thumb-lever, as hereinafter more particularly set forth.

Under another modification of my invention, shown in vertical section at Fig. 3, and in plan at Fig. 4, of the drawings, a hollow vertically-sliding breech-piece, A, is employed through a hole, in the front part of the hollow of which the point of the hammer or striker B acts upon the igniter in the base of the cartridge. The hammer or striker B is centered on the same axis or pin C with the extractor D, and the vertically-sliding breech-piece on being depressed by the lever E acts upon curved feathers or projections A (shown more particularly in the detail views, Figs. 5 and 6) on the sides of the hammer or striker B, whereby it is cocked or thrown up into firing position, which being effected the forward extremity of an elongated sear, F, enters the bent or notch *c*, and retains the hammer or striker B at the said position. The sear F is centered on a pin, G, and its rearward end is upturned and bent over the top of the trigger H, as shown, so that when the trigger is pulled backward, after the breech-piece A has been returned to position for closing the end of the cartridge-chamber I, the rearward end of the sear F is raised, thereby depressing its forward end and releasing the hammer or striker, which is caused to act or strike against the igniter in the base of

the cartridge, by the mainspring J placed in front of the breech, and attached to the hammer or striker by the swivel K, as shown at Fig. 3. A plate-spring, L, is provided in conjunction with the sear F, by which the sear is in its proper position relatively with the trigger H.

The operation of extracting the case of the spent cartridge is effected by causing the surface M, formed on the hammer or striker B, to act while the hammer is being moved by the depression of the breech-piece on an inclined plane, N, formed on the extractor, as shown at Fig. 3, whereby the upper part of the extractor, together with the spent cartridge-case, is thrown outward, as hereinbefore described.

The hammer or striker in the modification now last described may be locked at the cocked position by a bolt, *o*, attached to the under side of the fire-arm by a pin, *p*, on which it is free to turn, so that by pushing its forward end outward a projection, *x*, formed on the rearward end of the bolt, as shown in plan by the detailed view, Fig. 7, enters a notch in the back of the trigger H, which is thereby locked in position; or the trigger H may be locked by sliding the bolt *o* forward, a slotted hole being formed therein for the pin *p*, as shown in plan at Fig. 8. In order to allow the hammer B to recede slightly after firing, the pin attaching the swivel K to the arm M of the hammer B may be made to fit loosely in the hole of the swivel.

Under another modification, illustrated in vertical section at Fig. 9, and in plan at Fig. 10, of the drawings, the piston A, through which the striking action is produced on the cartridge, is hinged or jointed by a pin, *a*, to a small projection formed on the under side of the breech-piece B.

In preparing to load the fire-arm now under reference, the point of the piston A is brought within the hole in the front part of the breech-piece, and the hammer C is started before the breech-piece begins to descend. This is effected on depressing the lever D by a pin, *b*, fixed in the upper ends of the links E, and which pin fits loosely in a hole in the breech-piece, as shown. The lower extremity of the link E is, under this modification, shown turned rearward, by which means the arc through which the lever D is moved in depressing the breech-piece is diminished, but a link similar to those shown in connection with the other modifications may be used in lieu thereof.

The cocking of the hammer or striker is effected by the under side of the breech-piece acting on feathers, as hereinbefore described, and the hammer or striker is retained at full cock by a string, *c*, placed under the elongated sear G in lieu of at the side thereof, as hereinbefore set forth. The lever D is retained in its position, and the hammer or striker is locked at full cock by a combined spring-bolt and catch, *d*, the upper end of which is passed through a slot in the trigger-plate, as more particularly seen at *e*, Fig. 4<sup>a</sup>. The lower part of the bolt is terminated in a pin, *h*, situated in the upper part of the lever D, in which it is free to move from side to side, and thus, by pushing the head *h* of the bolt opposite the rearward part of the trigger I, the said trigger, and also the lever D, is locked in its position. The bolt now last described may be employed in lieu of that hereinbefore described and shown at Figs. 3, 7, and 8.

The extractor is operated by the hammer or tumbler acting on an inclined plane on extractor in the manner indicated in Figs. 3 and 4. In lieu of forming the vertically-sliding breech-pieces of the breech-loading fire-arms, hereinbefore described, rectangular, or nearly so, as shown on the drawings, the said breech-pieces may be made circular or cylindrical.

Having described my invention and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the hammer and the vertically-sliding breech-piece, arranged so that its bottom will, during the descent of said piece, act on the breast of the hammer, or on curved feathers or projections on the hammer, to effect the cocking of the same, substantially as shown and described.

2. The combination with the sliding breech-piece and the extractor, provided with an inclined plane, as described, of the hammer or tumbler, arranged so that the breech-piece, during its descent, will operate said hammer to cause its outer end to act on the said inclined plane, and so actuate the extractor, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALEXANDER HENRY. [L. S.]

Witnesses:

ALEX. BROWN,  
JOHN BROWN.