

A. N. NEWTON.
BREECH LOADING FIREARM.

No. 11,700.

Patented Sept. 19, 1854.

Fig. 1.

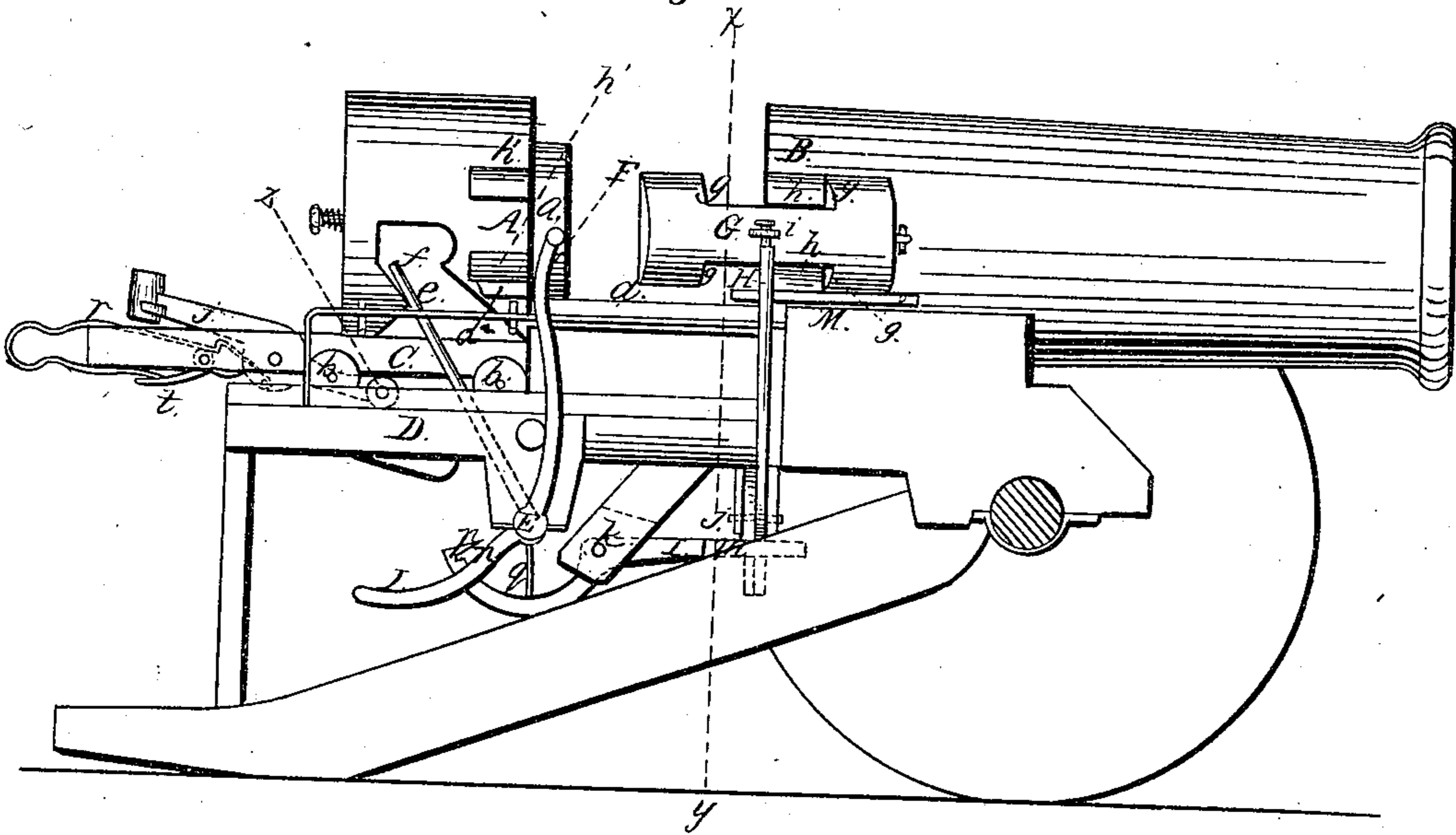
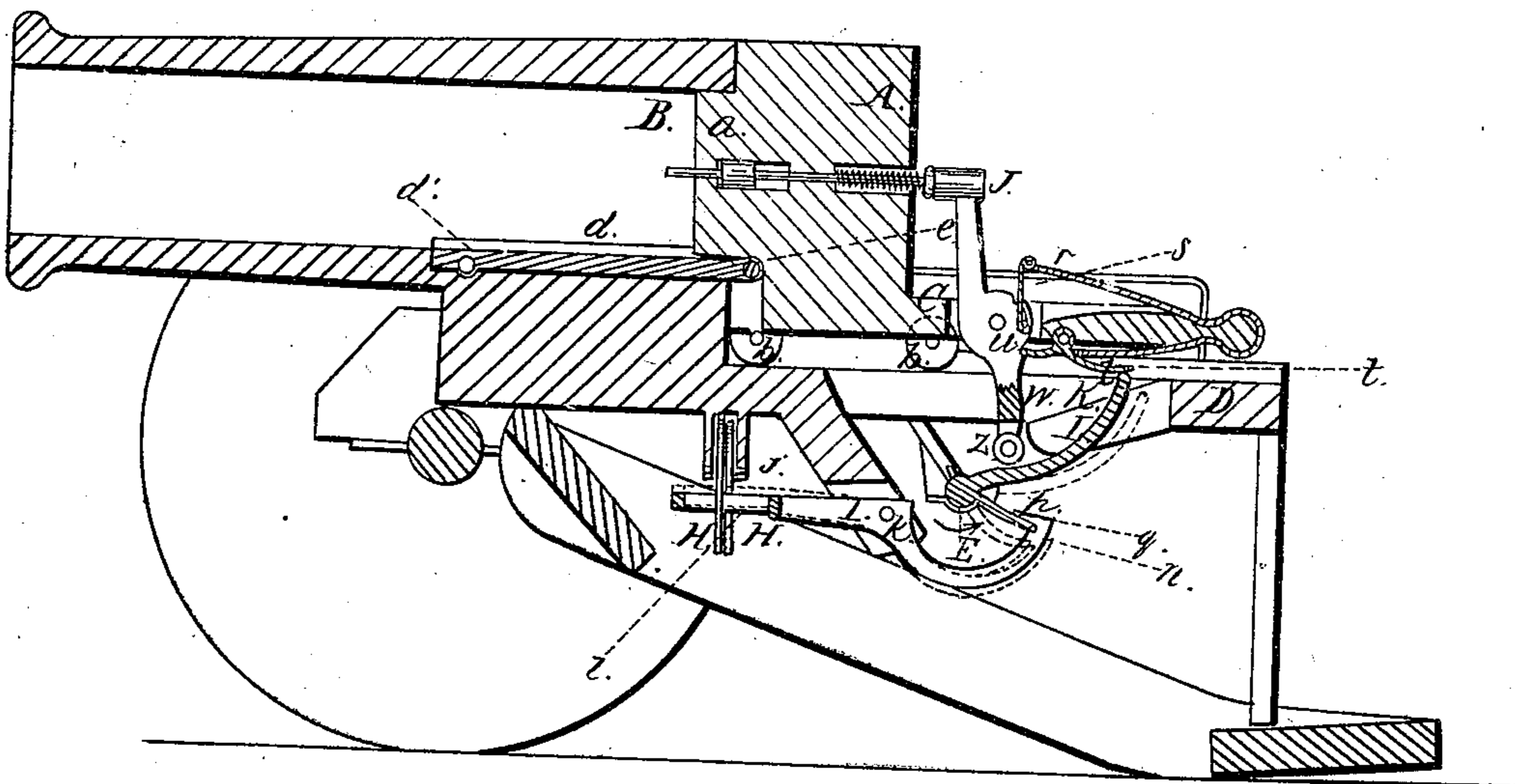


Fig. 2.

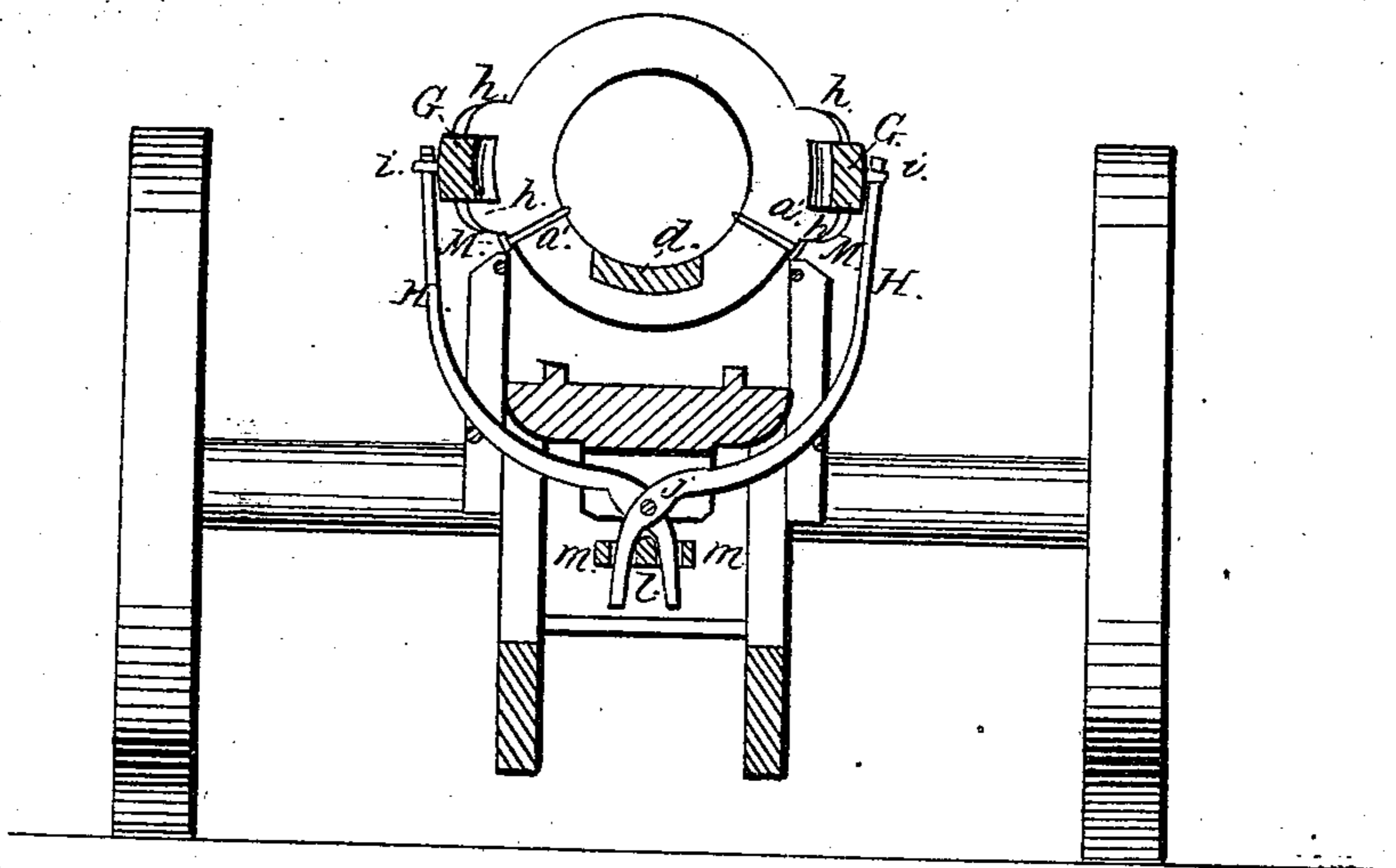


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Fig: 3.



UNITED STATES PATENT OFFICE.

ABNER N. NEWTON, OF RICHMOND, INDIANA.

BREECH-LOADING FIRE-ARM.

Specification forming part of Letters Patent No. 11,700, dated September 19, 1854.

To all whom it may concern:

Be it known that I, ABNER N. NEWTON, of Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of a cannon constructed according to my invention, with the movable breech thrown back for the insertion of the charge. Fig. 2 is a longitudinal section of the same through the center, with the breech in place. Fig. 3 is a transverse section in the line xy of Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention—which is applicable to cannons only, but may be in part applicable to fire-arms of every description—consists, first, in a certain mode of constructing the movable breech; secondly, in a certain method of operating a pair of clamps by which the sliding breech is held in place, and which requires to be released when the breech is to be thrown back; thirdly, in certain improved mechanism for giving the necessary motion to the sliding breech; fourthly, in the arrangement of the lock of the gun, whereby the sliding movement of the breech and the movement of the mechanism employed to effect the said movement are made to effect the cocking and setting free of the hammer; and, fifthly, in certain means by which the explosion of the charge is rendered impossible until the breech has commenced to enter the chamber.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the movable breech, and a the breech-pin, forming part thereof, and fitting to the rear end of the chamber B. The breech is mounted upon and rigidly secured to a small carriage, C, which is mounted on small wheels b, b , running on fixed tracks on a table, D, which forms part of the gun-carriage, the said track being parallel with the bore of the gun. There is hinged to the breech-pin, by a hinge-joint, c , a lip, d , which fits to slide in a recess in the lower part of the interior of the chamber, so as to form a portion thereof, as shown

in Fig. 2, but which, when the breech is drawn back in the line of the bore, as shown in Fig. 2, is capable of receiving a cartridge, which requires merely to be placed upon it, and can then be carried straight into the chamber by moving forward the breech. The reason for hinging the lip to the breech-pin is that the lip may be capable of a slight motion to prevent its fracture, which would certainly sooner or later take place, while the gun is in service, if the lip were rigidly attached and the fitting were not quite true, or the parts should wear out of truth, so as to prevent the lip bedding firmly on the floor of the recess. A fracture of the rigid lip would require the whole breech to be removed; but if a fracture of the hinged lip should take place a new one may be substituted in a few minutes if one or more spare lips be carried with each gun. The lip is provided near its front end with a friction-roller, d' , (see Fig. 2,) which is let into it to such a depth as to project a very little below its bottom surface. This roller, when the breech is being run or wheeled back and forth to charge the gun, runs on the bottom of the recess and takes off the friction which the weight of the lip and the charge would produce; but when the lip is in its place, as shown in Fig. 2, it falls into a slight depression in the recess, to allow the lip to bed firmly on the bottom of the recess. The breech is moved back and forth by means of two arms, e , which are attached to a transverse shaft, E, which rests in bearings under the table D, and is moved on its axis by means of a hand-crank, F, the said arms e entering recesses f , one on each side of the breech. The form of the recesses and the positions of the arms $e e$ are such that when the breech is in place it cannot be driven back by the force of the explosion acting on the breech.

G G are the clamps, which secure the breech closely to the rear of the chamber while the gun is being discharged, consisting of strong metal plates having shoulders $g g$ at each end, to receive between them the ears $h h$ on the sides of the gun, and the similar ears, $h' h'$, on the sides of the breech, which said ears receive between them the smaller part of the clamps, which is situated between the shoulders $g g$, and thus guide their movements. The front ends of the clamps are attached, by a link-connection, a hinge, or otherwise, to the sides

of the gun, and near the center of their length are furnished outside with two staples or loops, *i i*, to receive the ends of the long curved upper arms of two levers, H H, which both work on a fixed fulcrum, *j*, below the table D, and somewhat resemble a pair of shears. The lower short straight arms of these levers enter two slots in the forward arm of a lever, I, which works on a fulcrum, *k*, and when the slotted part of this lever rises the piece *l*, (see Fig. 3,) which separates the slots, acts like a wedge in forcing the levers H H apart, and throws outward the rear ends of the clamps; but when it descends the pieces *m m* outside the levers H H draw the said levers together and throw the clamps inward. The back arm of the lever I is of curved form, and has a tongue, *p*, at its extremity and a notch, *n*, just within the tongue, and this arm is actuated to operate the clamps in the following manner by means of a plate or broad flat arm, *q*, attached to the transverse shaft E: During the movement of the breech the lever I remains in the position indicated in red lines in Fig. 2, and just as the crank-shaft has been moved in the direction of the arrow shown near it in Fig. 2 far enough to bring the breech home to its place the plate *q* arrives in contact with the tongue *p* on the lever I, and a slight continued movement, which is provided for by the form of the recesses *f f* in the breech, throws up the rear end of the lever to the position shown in black outline, and in so doing depresses the forward end and throws the levers H H toward each other, and throws the clamps inward into position to confine the breech. The edge of the plate *q* then falls into the notch *n*. When the crank-shaft is moved back in the opposite direction to throw back the breech, the earlier part of its movement does not affect the breech, owing to the play which is left in the recesses *f* for the arms *e*; but the plate *q* acts on the lower side of the notch *n*, and depresses the rear end of the lever, and raises the forward end far enough to force apart the levers H H and open the clamps to set free the breech, immediately after which the arms *e* come into operation. As soon as the plate *q* works out of the notch *n* the movement of the lever I ceases and the lever is held stationary, so as to lock the levers H H and the clamps, by reason of the curved form of the upper side of the lever I, being an arc corresponding with the movement of the extremity of the plate *q* and the said plate working in contact therewith. The lever I is in this way held stationary during the whole of the backward and forward movement of the breech; but when the breech is home the plate *q*, striking the tongue *p*, causes the clamps to be thrown inward to lock the breech, as before described. When the breech is in place, the plate *q* is always in the notch *n* of the lever I, and thus the lever is locked, and locks the levers H H and the clamps, and can only be unlocked by the movement of the crank-shaft.

J is the hammer, which, together with the mainspring *r*, the catch *s*, the feather-spring *t*, are all attached to the breech-carriage C, so as to move with the breech. The explosion of the cartridge is effected by means of a needle working through the center of the breech, and hence the hammer is arranged opposite the center of the breech, and the tumbler *u* is attached to it. Attached to the tumbler is an arm, *w*, extending in the opposite direction to the hammer, and working in a slot in the table D of the gun-carriage, and to this arm is attached a friction-roller, *z*, which, as the breech moves back, runs up an inclined way, K, on the table D, and thus throws back the hammer until it is cocked. The hammer is set free to explode the charge by means of an arm, L, attached to the crank-shaft, which, by a slight continued motion of the crank after the breech is home and the clamps have secured it, draws the feather-spring from its notch in the tumbler. It is impossible that the charge can be exploded before the breech-pin has entered the chamber, as, until the breech-pin has moved so far forward, the arm *w* of the hammer would be arrested by coming in contact with the table D.

There are two light springs, M M, secured to the sides of the gun some distance in front of the breech and extending beyond the rear end, carrying pins *a' a'*, which enter between the rear end of the chamber and the breech, with their points extending a little beyond the walls of the gun to prevent the shell of an exploded cartridge from being withdrawn by the drawing back of the breech. These pins offer no obstacle to the entrance of cartridges at the breech, as, owing to the rounded shape of the front of the cartridges, they will be forced aside; but in order to prevent them stopping the entrance of the breech-pin I make a projection, *a''*, on either side of the breech, (see Fig. 1,) which will come in contact with the ends of the springs, which are bent to a suitable shape for the purpose, and force them aside at the time the breech-pin arrives near them. When the breech is in place the pins *a' a'* lie within recesses in its shoulder.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Constructing the breech with a hinged lip, *d*, substantially as described, which fits to a recess in the chamber and receives the charge when the breech is drawn back, but forms part of the chamber when the breech is in place for firing, and which, when the breech is moving back and forth, is capable of a slight vibration to compensate for any want of truth in the breech or its fittings, and to enable itself to rise from the floor of the recess in the chamber, to be supported by a friction-roller, *d'*, in running back and forth, but to bed firmly on the floor of the recess when the breech is in place for firing, as herein set forth.

2. The method, substantially as described, of operating the clamps G G to lock and unlock the breech by means of the crossed or shears levers H H, the double-slotted lever I,

and the plate or broad arm *g* on the transverse shaft *E*, all constructed, arranged, and operating substantially as herein set forth.

3. Moving the breech back and forth by means of arms *e e*, attached to the same shaft *E*, which is the first mover of the mechanism which actuates the clamps to lock and unlock the breech, the said arms entering recesses in the sides of the breech, substantially as herein set forth.

4. The attachment of the hammer, main-spring, tumbler, and feather-spring, or all that combination of parts constituting the lock of the gun, to the movable breech, or to the same carriage therewith, in any way, substantially as described, whereby the movement of the

breech is made to effect the cocking and setting free of the hammer to explode the charge.

5. So constructing the inclined way *K* on the gun-carriage which actuates the arm *w* of the lock in cocking the hammer that if the hammer escapes it will be prevented, by the arm *w* coming in contact with the said way, from striking the needle or its equivalent, which explodes the charge, until the breech-pin has entered the chamber of the gun, substantially as described.

ABNER N. NEWTON.

Witnesses:

S. G. DUGDALE,
JOHN FINLEY.