

JOHN W. COCHRAN.

Improvement in Breech-Loading Fire-Arms.

No. 126,446.

Patented May 7, 1872.

Fig. 1.

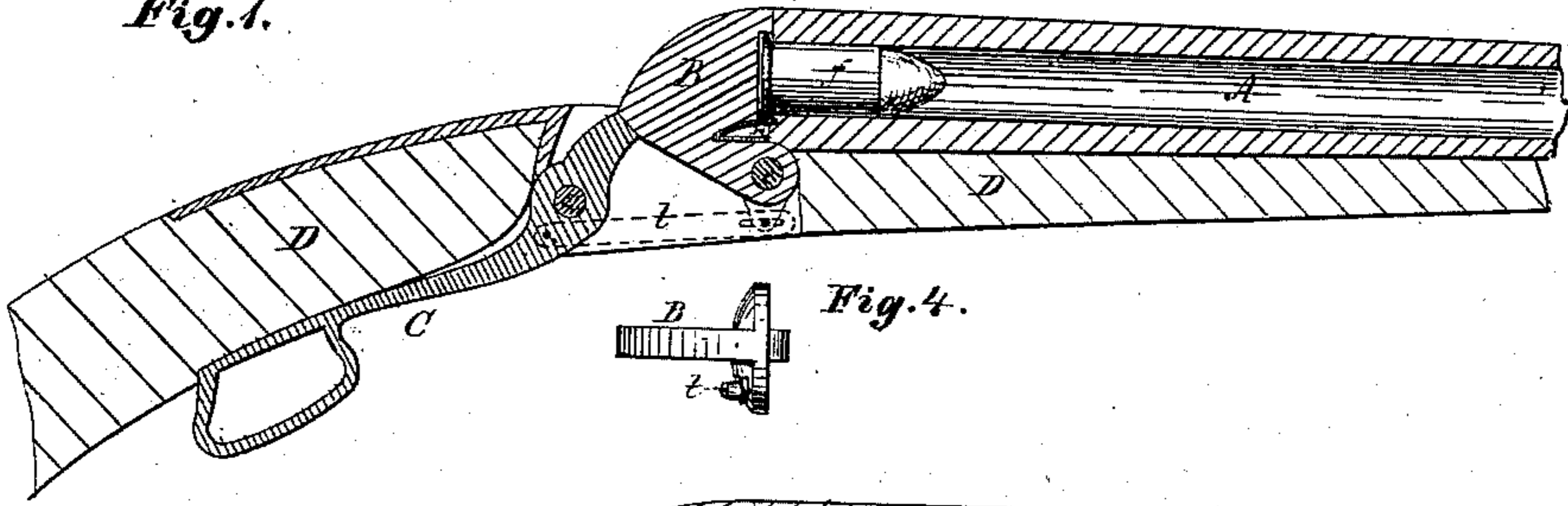


Fig. 4.

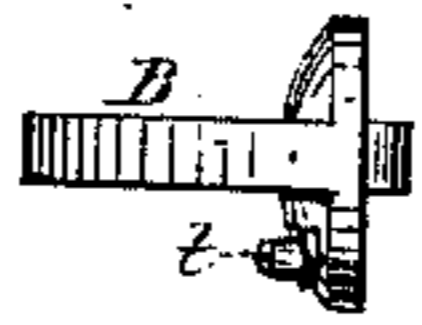


Fig. 2.

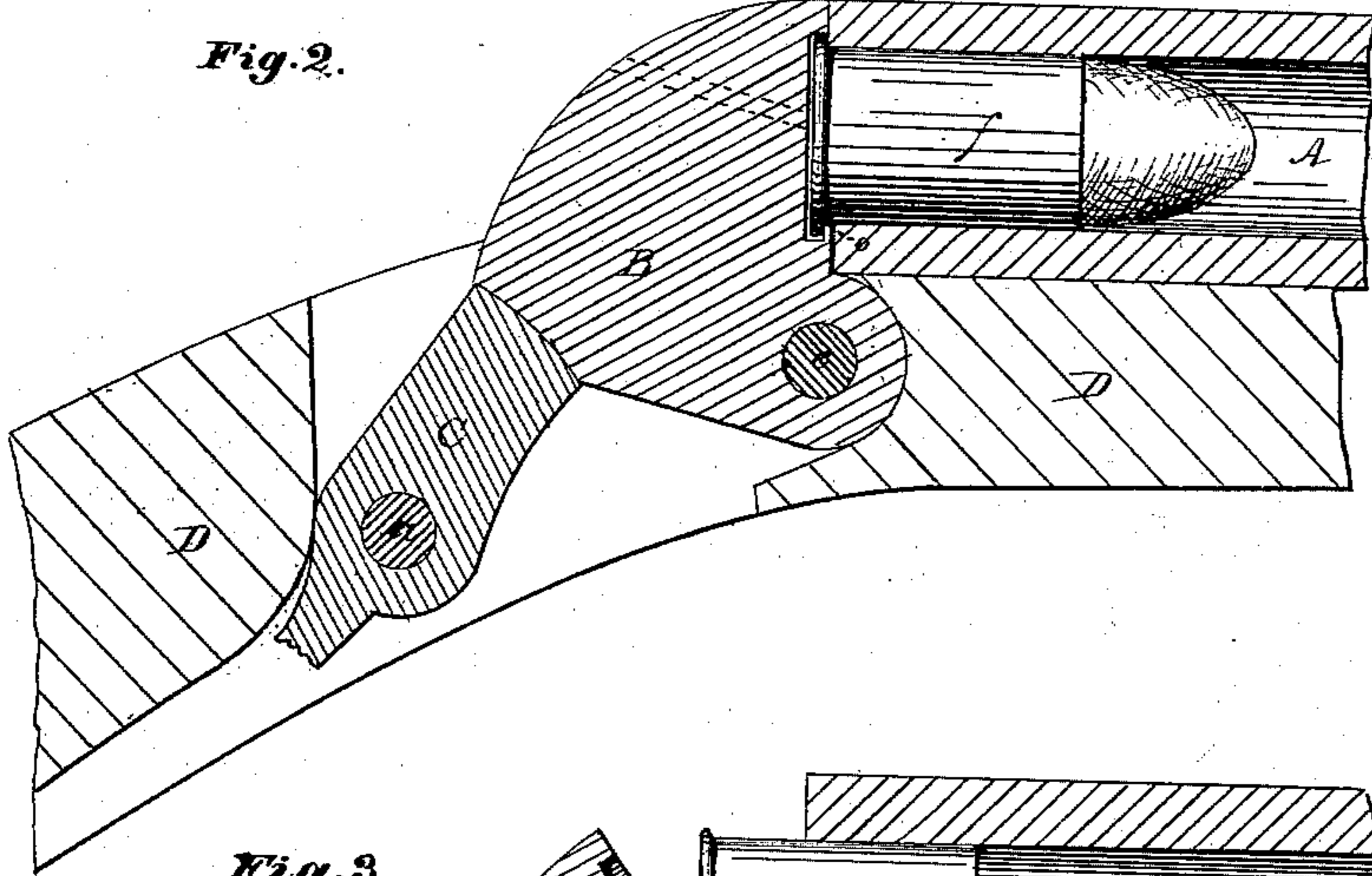
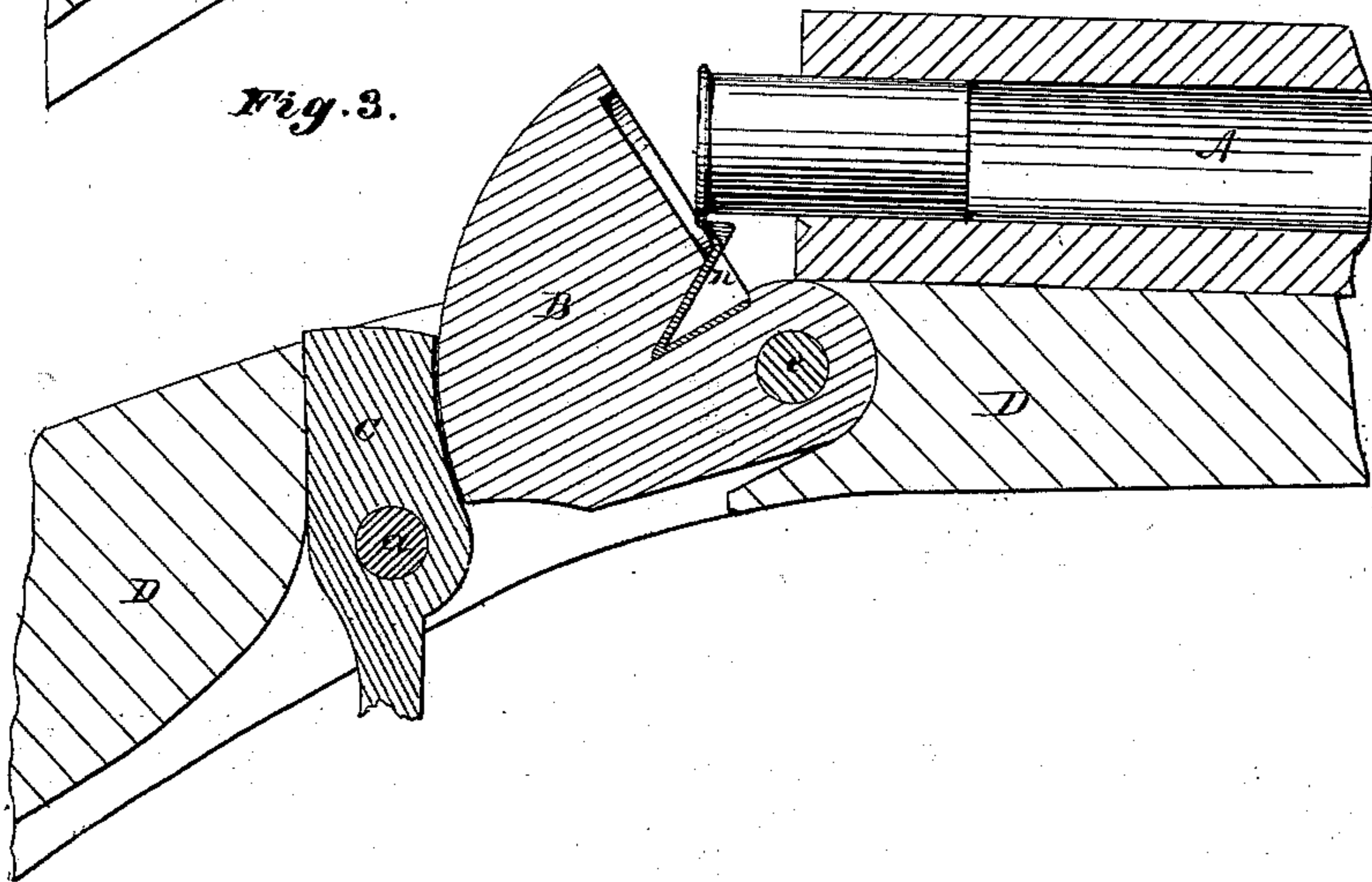


Fig. 3.



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IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 126,446, dated May 7, 1872.

To all whom it may concern:

Be it known that I, JOHN W. COCHRAN, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Breech-Loading Guns; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention consists in a novel construction and arrangement of a swinging breech-piece with a brace pivoted to the frame in rear of the breech-piece for the purpose of holding the same securely in position while the gun is being fired. It also further consists in combining with the breech-piece an ejector for starting or removing the cartridge-shell as the breech is opened.

Figure 1 is a longitudinal vertical section with the breech closed. Fig. 2 is a similar view with a modification of the cartridge-ejector. Fig. 3 is a longitudinal vertical section with the breech partially opened to represent the operation of withdrawing the shell. Fig. 4 is a top-plan view of the breech block detached.

A represents the barrel, which is constructed in the usual style for this class of arms, the rear end of the barrel being left entirely open. D represent the stock, made of any suitable style to adapt it to the working parts of the arm. In rear of the barrel I locate a breech-block, B, of the form represented in the drawing. This breech-block I hinge or pivot at its front lower portion on a bolt, *e*, as represented in Figs. 1, 2, and 3; it being of suitable size to entirely cover and close the breech-end of the barrel when turned up in the position represented in Figs. 1 and 2. In the drawing I have represented the front face of this breech-block B as having in it a recess of sufficient size to fit over the rear end and flange of the cartridge *f* when the breech is closed; but it is obvious that instead of having this recess in the face of the breech-block it may be omitted and the rear of the chamber be counter-bored to permit the flange of the cartridge to

enter and rest therein, the result being the same in either case. For the purpose of securely locking or bracing this breech-block B in place when closed, so as to withstand the pressure of the gases evolved in the discharge of the arm, I pivot a lever, C, in the under part of the stock D in rear of the breech-block, as represented in Fig. 1; this lever C being pivoted on a bolt, *a*, and having its front end formed substantially as shown, so as to form a strong brace, resting against the rear side of the breech-block, and thus brace it firmly in place, as clearly shown in Figs. 1 and 2. This lever extends back a suitable distance and terminates in a handle, *h*, by which it can be readily operated.

As will be seen by Fig. 4, the breech-block is so constructed that that portion which rests against the front end of the lever C forms a central longitudinal projection much narrower than the front portion which covers the rear end of the barrel. This form is adopted simply to save metal and weight, and because by thus forming it a less space is required for it to rest in when turned back.

The device for withdrawing the cartridge-shell consists of a small spring-hook, *n*, fitted into a recess of proper size in the front side or face of the breech-block B, as shown in Figs. 1 and 3; this spring *n* having its front end formed into a small hook to pass under and in front of the flange of the cartridge-shell when the breech is closed, as represented in Fig. 1. To enable this hook *n* to slip under the flange of the cartridge, (in case the latter has been shoved entirely into the chamber while the breech-block remained thrown back,) the upper front point or portion of the hook should be slightly beveled, as represented in Fig. 3, and there should be a small recess made in the rear end of the barrel, at its lower side, for this projecting point of the hook to enter as the breech is closed; this recess being shown in Fig. 3 at *u*.

With the breech-block B and the ejector *n* thus constructed and arranged, it will be seen that when a cartridge, *f*, is shoved into the chamber and the breech then closed the hook on the end of the ejector *n* will be forced under the flange and engage with the front face of said flange, as represented in Fig. 1, and that when the breech-block B is swung back the hook on the front end of the ejector *n* will

draw the cartridge-shell out of the bore as it swings back with the breech to a point where, as it moves in the arc of a circle, of which the pivot *e* is the center, it passes below the horizontal plane in which the flange of the shell moves, when it will be released from the shell, leaving the latter sticking part way out of the rear end of the barrel, as clearly represented in Fig. 3; or, if the breech-block be thrown suddenly back, the momentum imparted to the shell may be sufficient to throw it entirely out of the chamber. As, however, springs are considered objectionable, especially in military arms, subjected, necessarily, to rough treatment, it is obvious that instead of the spring *n* the ejector may consist of a solid spur or stud, *o*, formed on the lower front side of the breech-block B, as represented in Fig. 2; this stud *o* operating in the same manner to withdraw the shell as the spring-ejector *n* would. If, however, this form be adopted, care must be taken not to shove the cartridge entirely into its place in the chamber before commencing to close the breech-block; because, if it were, then it is obvious that the stud *o* would strike against the rear end of the cartridge when the breech was closed, and thus prevent the breech-block from closing perfectly, and, at the same time, endanger the exploding of the cartridge, especially if rim-primed cartridges were used. When this form of ejector is used the shell should be shoved partially in and the breech-block B then turned up, the stud *o* passing under the flange and the block B at the same time shoving the cartridge into its place, with the stud *o* in front of the flange, ready for withdrawing the shell when the breech is opened.

It is obvious that either center or rim-primed cartridges may be used in such a gun. If the arm be intended for using the latter only, then a firing-pin will be located in the breech-block B, in the position represented by *t* of Fig. 4, so as to strike the flange of the cartridge. If central-primed cartridges are to be used, then the firing-pin will be located as represented by the dotted lines in Fig. 2, so as to strike at the center of the rear end of the cartridge.

If desired, a link or rod, *l*, may be used to connect the lever C with an arm or projection formed on the lower extremity of the breech-block, as represented in red in Fig. 1, for the purpose of opening and closing the breech by the movements of the lever C. If this be done there must be sufficient lost motion in the link *l* to permit the front end of the lever

C to pass from behind the block B and thus unlock the latter before the link *l* operates on the breech-block to throw it open. Whether this link *l* be used or not the upper rear face of the block B should be formed on the arc of a circle, of which *e* is the center, or nearly so, and the front arm of the lever C be so curved or formed as to permit the breech-block to swing down in front of it as the latter is thrown up.

By these means I construct an arm that is simple, efficient, and durable, and which by the act of opening the breech, withdraws the shell, in whole or in part, without the use of any other devices or parts than those attached to and forming a part of the breech-block.

I am aware that a gun has heretofore been described having a swinging breech-block similar to mine, and, therefore, I do not claim such breech-block separately considered.

I am also aware that a gun has been described in which there was a breech-block having a longitudinal backward and also a downward movement with a tooth pivoted thereto to act as an extractor; also, that a pistol has been described having a swinging breech that was locked in position by the nose of the hammer when fired; and, therefore, I do not claim such; but

Having fully described my invention, what I do claim is—

1. The combination, in a breech-loading gun, of a breech-block pivoted so as to swing backward and downward in the arc of a circle around a fixed point, with a brace other than the nose of the hammer pivoted to the frame in rear of said block, said brace being arranged to swing upward in unlocking the breech, substantially as described.

2. The breech-block B, pivoted to the frame so as to swing backward and downward without any longitudinal sliding movement in opening, in combination with the extractor *n* or *o*, the combination and mode of operation being substantially such as herein described.

3. I also claim the combination of the swinging breech-block and the extractor with the pivoted lever or brace, the said parts being arranged in relation to each other, and the combination being substantially such as herein described.

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Witnesses:

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