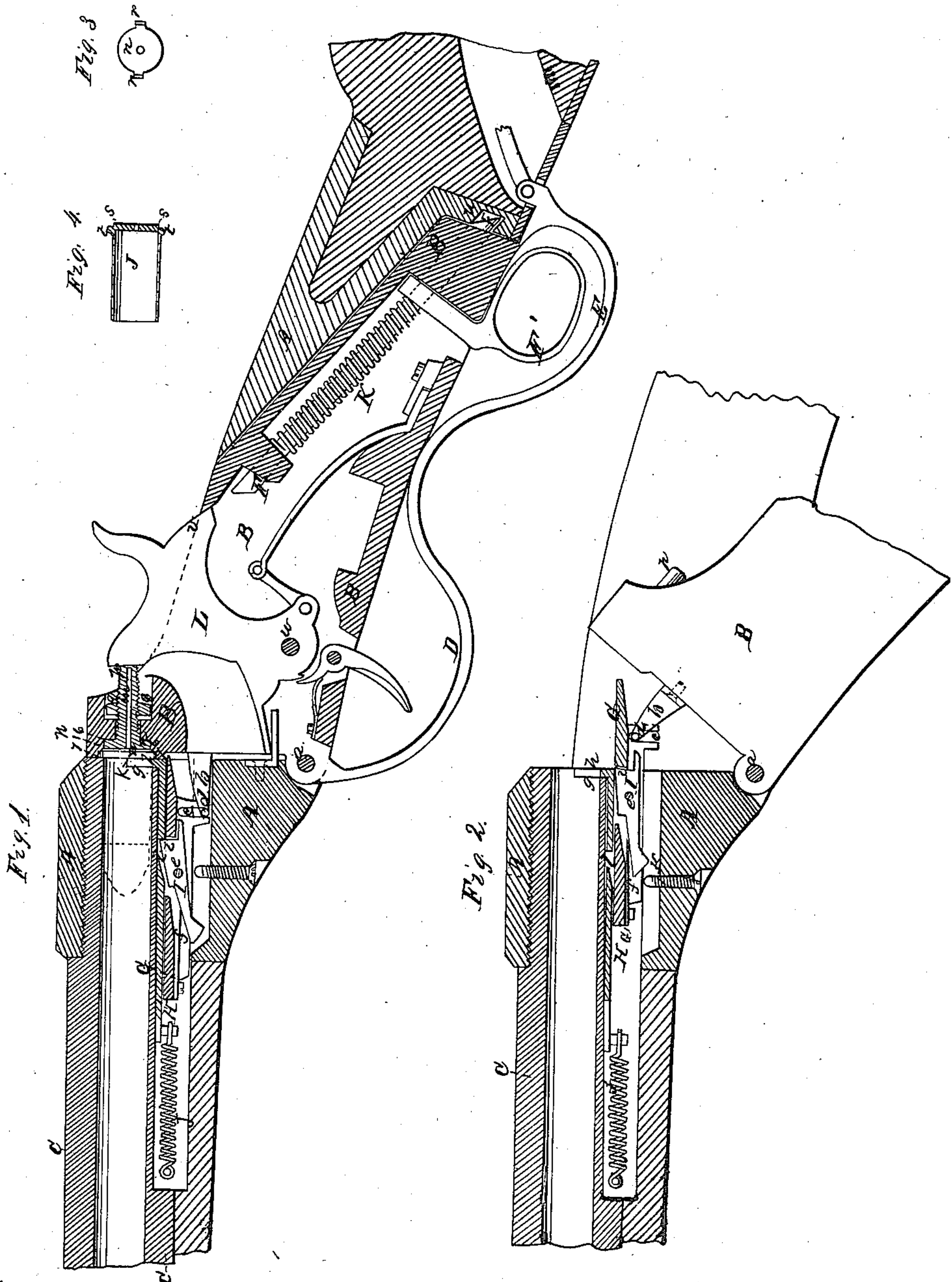


*J.W. Cochran,
Breech Loader.*

No 40,992.

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IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 40,992, dated December 22, 1863.

To all whom it may concern:

Be it known that I, JOHN W. COCHRAN, of the city, county, and State of New York, 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 longitudinal vertical section of the frame, movable breech-piece, and lock, and of parts of the stock and barrel of a fire-arm with my improvements, showing the parts in condition for firing. Fig. 2 is a similar section of some of the parts shown in Fig. 1, representing them in position for loading. Fig. 3 is a front view of the piston attached to the nipple for firing the fixed ammunition. Fig. 4 is a longitudinal central section of the gas-check which is used to make the gun muzzle-loading.

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

This invention consists in certain improved means of supporting the cartridges before their entrance into the barrel in loading at the breech; also, in an improved mode of operating the device by which the withdrawal of the discharged cartridge-shells from the barrel is effected; also, in certain improved means by which provision is afforded for the use in the same fire-arm, either of fixed ammunition to be fired by a percussion-cap or other fulminate priming applied to a nipple, or of loose powder and ball.

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

A is the frame having a parallel-sided vertical opening through it for the reception of the movable breech-piece B, which is arranged to swing on a pin or hinge, *a*, for the purpose of opening the rear end of the barrel C for the reception of the charge in loading at the breech. The breech-piece B contains within it the several parts of the lock, and has attached to it the trigger-guard D, and a second guard, E, arranged behind the first one for the protection of the ring F', by which the bolt F, for securing the breech-piece in the frame, is worked.

G is an apron consisting of a plate of metal fitted to slide in a suitable guide or guides, provided in the frame below and parallel with

the barrel, and so connected with the breech-piece B by a finger, *b*, which is rigidly secured to the front of the said piece, and which is attached to the said apron by a slot-and-pin connection, *c d*, shown in Figs. 1 and 2, that by the act of opening the breech-piece to uncover the rear end of the barrel, for the introduction of the cartridges, the said apron is drawn back so that a part of it is made to project beyond the said end of the barrel, as shown in Fig. 2; and by the act of closing the breech-piece the said apron is moved forward again under the barrel, as shown in Fig. 1. When the said apron is drawn back, as shown in Fig. 2, the rear portion of it serves as a resting place upon which to place the cartridges for loading, and the cartridges so placed will be pushed forward into their proper place in the barrel by the breech-piece itself in the act of closing the latter. Figure 1 represents in red color a cartridge in its place.

H *h* is the device for drawing the discharged cartridge-shells from the barrel, consisting of a straight slide, H, fitted to slide parallel with the barrel, below the back part of the same and between it and the apron G, and having at its rear end a fork, *h*, which is turned up at right angles to it, and which is made to fit a recess, *g*, provided for its reception in the rear end of the barrel. This device does not differ in its construction and arrangement from the device used in other fire-arms for the same purpose, and it is only in its combination with the apron G and the mode of operating it that my invention consists. The slide H is combined with the said apron by means of a small latch-lever, I, which works through a slot in the apron G, to which it is attached by means of its fulcrum-pin *e*. The said apron has attached to its front part a spring, *f*, which presses downward upon the front end of the said lever I, and so causes the latch *i* of the said lever to enter a notch or slot, *l*, in the slide H, and attach the said slide to the said apron in such manner that when the said apron is drawn back by the act of opening the breech-piece the slide is drawn back with it, and the discharged cartridge-shell is drawn out of the barrel by the hook *h* and allowed to drop from the gun. The slide H has connected with it a spring, *j*, which exerts a continual tendency to draw it forward, and a little before the opening movement of the breech has been

completed the front end of the latch-lever I, which is turned downward and suitably beveled for the purpose, comes in contact with the point of a fixed screw, *k*, or with any other suitable fixed point, and by passing over the said point is pressed upward sufficiently to withdraw the latch *i* from the notch *l*, and so to leave the slide H free from the apron, which continues its backward movement a short distance, while the slide H is drawn forward suddenly by the spring *j*, and the fork *h* thereby returned to its position within the recess *g* in the rear end of the barrel, where it is out of the way of the new cartridge in reloading. Fig. 2 shows the apron as having been drawn back the whole distance, and the slide H and hook *h* as having been liberated and returned by the spring *j*. When the breech has been closed, and the apron G thereby returned to its position under the barrel shown in Fig. 1, the latch-lever springs up again into the notch *l* in the slide H and so reattaches the said slide to the apron.

n is a piston fitted to the center of that part of the breech-piece B which constitutes the breech proper—that is to say, the part which comes directly in rear of the barrel, as shown in Fig. 1. This piston, which is of smaller diameter than the rear ends of the shells of the fixed ammunition, is furnished with a stem, *m*, the extremity of which is finished in the form of a nipple, as shown at *p* in Figs. 1 and 2, for the reception of percussion-caps, and there is a hole right through the center of piston, stem, and nipple, to constitute a vent. The breech is bored right through of a size to allow the stem of the nipple to slide freely back and forth, and counterbored from the front, as shown at 6 6 in Fig. 1, of a size for the piston *n* to fit easily and to a depth greater than the aggregate thickness of the piston and of the flanges on the shells of the fixed ammunition, and further counterbored, as shown at 7 7 in the same figure, to a size and depth to receive the above-mentioned flanges, leaving the first counterbore 6 of a depth somewhat greater than the thickness of the piston *n*. It is also counterbored from the rear for the reception of a nut, *q*, which screws onto a screw-thread provided on the exterior of the stem, to prevent the piston from dropping out of the breech when the latter is open. This nut is screwed up to such a point that it leaves the piston free to move back and forth a short distance—say, about one-sixteenth of an inch. The stem *m* is made of such a length that the nipple *p* protrudes a sufficient distance through the back of the breech for the reception of percussion-caps, which, it will be understood, are only to be used when the gun is loaded with loose powder and ball, or with cartridges which do not contain a fulminate-priming. The piston is furnished with horns or projections *r r*, (see Fig. 3,) which project forward beyond its face for the purpose of penetrating or indenting the shell of the fixed-ammunition cartridge and so exploding it when the hammer strikes

upon the bare nipple and drives the piston forward.

The gas-check J, (shown in Fig. 4,) which I employ in connection with charges of loose powder and ball, or with cartridges which contain no fulminate-priming, consists of a shell of steel or other metal of the same form externally as the metallic shells of the fixed-ammunition cartridges, except that it has on its bottom a projection, *s*, of a form to fit and fill the portion of the counterbore 6 of the breech, which the piston *n* does not fill, the said projection, when the shell J is put into the barrel, being received between and not coming in contact with the horns *r r*, the forward projection of which is outside of the circumference of the piston. This projection *s*, when the breech is closed, holds back the piston against the back of the counterbore 6 and prevents it from moving forward.

In order that the piston may have a solid bearing, the shell J should have its flange *t* solid and its bottom thicker than that of the fixed-ammunition shell. The bottom of the shell J is perforated centrally to form a communication between the vent of the nipple and piston and the interior of the chamber of the barrel. When this shell J has been inserted in the rear end of the barrel and the breech-piece has been closed, the piece may be loaded at the muzzle in the same way as any muzzle-loading fire-arm, and fired by the hammer striking on a percussion-cap placed on the nipple *p*. The piece may, however, be loaded with a paper or other cartridge which does not contain fulminate-priming by placing the rear end of the cartridge into the shell J and inserting the cartridge and shell together at the breech, the said shell in this case, as well as when loading at the muzzle, constituting a perfect gas-check, and preventing any leakage at the breech.

The bolt F, hereinbefore mentioned, by which the breech-piece B is secured within the frame in position to close the rear end of the barrel, consists of a straight bolt fitted to slide in suitable guides within the breech-piece, and having its rear end beveled, as shown in Fig. 1, in such manner that it may be pressed forward by coming in contact with the bottom of the frame A in the act of bringing up the breech-piece. The said bolt has applied to it a spring, K, which presses it backward, and which, when the breech-piece is closed, comes opposite to and slips into a hole, *u*, in the rear part of the frame, and so locks the breech-piece securely until the bolt is drawn forward again by applying the necessary force to its attached ring F', which protrudes through an opening in the bottom of the breech-piece. To make this bolt constitute a safety-bolt to prevent the hammer from being cocked, and so preventing the piece from being fired when the breech-piece is not properly locked, the bolt F is not prolonged in a forward direction to such extent that when the bolt is as far back as is necessary to lock the breech-piece

its front end will only just be clear of a projection, *v*, provided on the back of the hammer *L*, the upper face of the said projection being concentric with the hammer-pin *w*. When the breech-piece is properly closed and the bolt in the hole *u*, the bolt presents no obstacle to the cocking of the hammer; but in case of the breech-piece not being quite closed and the bolt not having slipped into the hole *u*, but resting against the part of the frame below the front end of the bolt, will act as a stop to the hammer and prevent it from being cocked.

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

1. The apron *G*, applied and operating in combination with the movable breech-piece, substantially as and for the purpose herein specified.

2. So combining the slide *H* of the cartridge-drawer with the apron *G* by means of a latch-lever, *I*, or its equivalent, and so applying a spring, *j*, and screw or other fixed point *k*, in combination with said slide and apron, that the slide may be attached to and moved back with the apron and automatically detached therefrom and drawn back independently thereof, substantially as and for the purpose herein described.

3. The gas-check *J*, provided with a projection, *s*, on its bottom, arranged to operate in combination with the piston *n* and movable nipple *p*, substantially as and for the purpose herein specified.

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