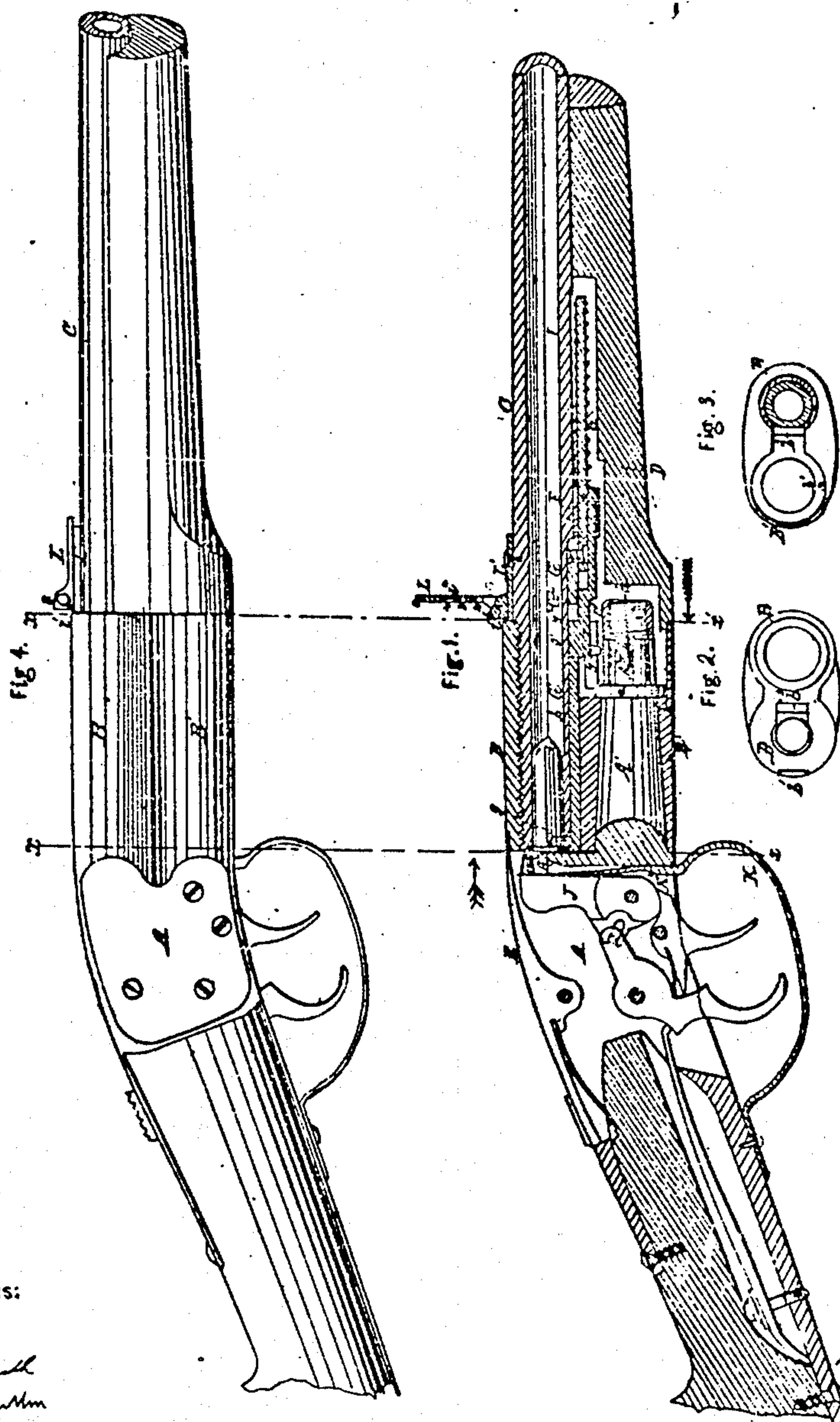


W. JOHNSTON.
Breech-Loading Fire-Arm.

2 Sheets—Sheet 1.

No. 44,868.

Patented Nov. 1, 1864.



Witnesses:

C. Smith
D. Smith

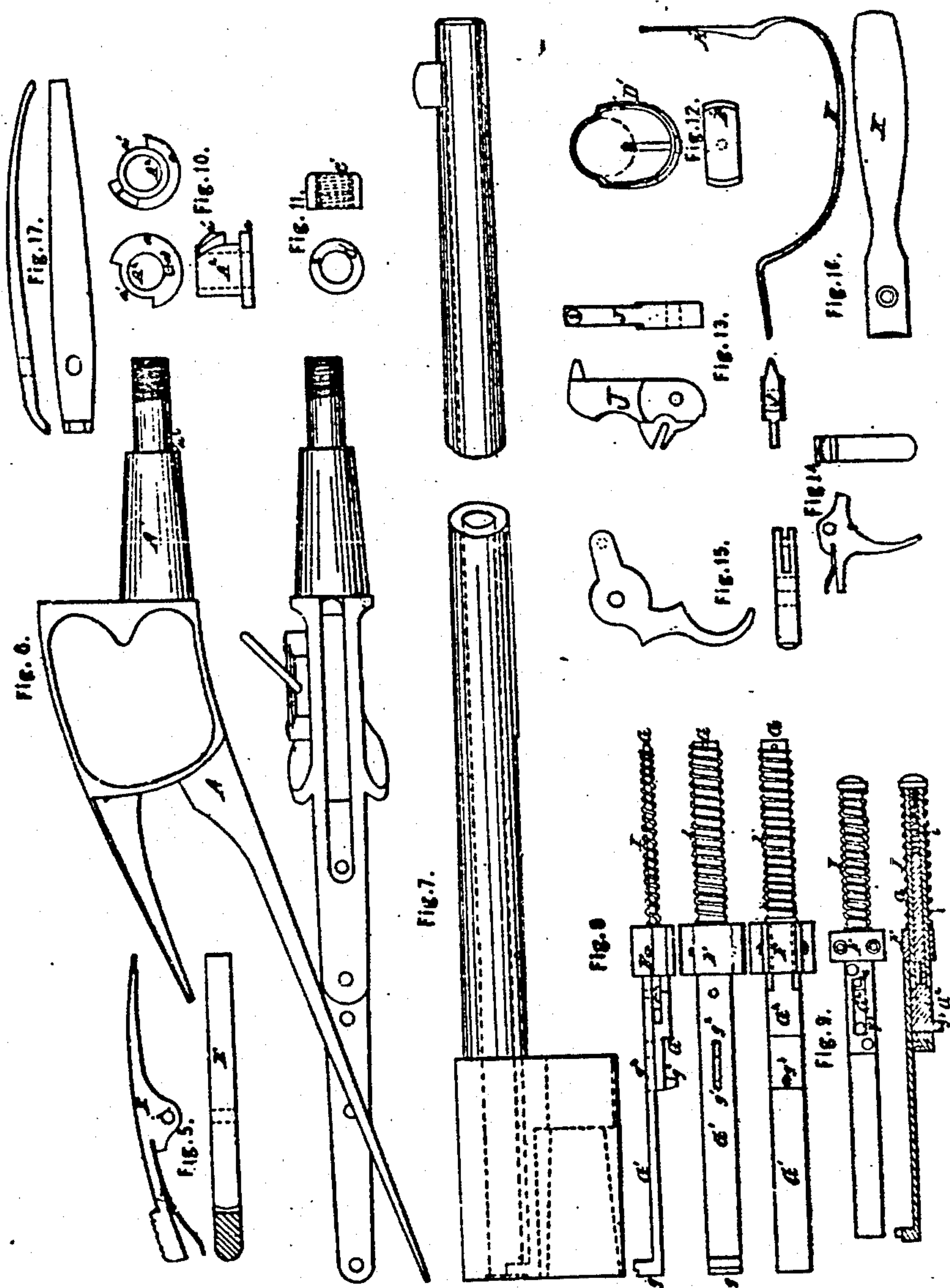
inventor:

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Inventor:

Wm Johnston
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UNITED STATES PATENT OFFICE.

WILLIAM JOHNSTON, OF CINCINNATI OHIO.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 44,868, dated November 1, 1864.

To all whom it may concern:

Be it known that I, WILLIAM JOHNSTON, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Breech-Loading Fire-Arms; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal central section of a breech-loading gun embodying my invention, the conical frustum or pintle on which the barrel rotates being shown in elevation. Fig. 3 is a rear end view of the double cylinder or sleeve, hereinafter referred to, on the line xx , looking forward. Fig. 3 is a front end view of said cylinder on the line $x'x'$, looking toward the stock. Fig. 4 is a side elevation of the gun. Fig. 5 represents in different positions the lever for locking the barrel in position for firing. Fig. 6 represents detached views of the breech, with the axle upon which the barrel turns. Fig. 7 is a detached view of the barrel and double cylinder or sleeve. Fig. 8 represents the cartridge-shell retractor and its spring, and Fig. 9 illustrates a modification of the same. Fig. 10 exhibits by elevation the collar which fits upon the axle of the barrel, and carries the cam, which, in connection with the pin on the retracting-rod, produces the movement of the cartridge-shell retractor, and which will be hereinafter more particularly referred to. Fig. 11 represents, in end elevation and section, the jam-nut by which the barrel and double sleeve are secured to the stock. Fig. 12 represents the metallic band or strap which encircles the barrel and stock to connect them together. Figs. 13, 14, 15, and 17 are representations of the lock and of the parts employed in immediate connection therewith. Fig. 16 represents the guard whose interior upward termination forms a recoil-spring to retract the hammer from contact with the barrel.

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

This invention relates to certain improvements which are chiefly applicable to the gun for which I obtained Letters Patent on the 13th day of May, A. D. 1862; and it consists, first, of a device for retracting the exploded car-

tridge in the act of rotating the barrel or of withdrawing the cartridge, if desired; second, of a method of making the retracting portion which is attached to the stock removable, so as to be renewed with little expense if injured or worn; third, in the peculiar arrangement of the double sliding retracting bar or rod and double-acting spring by which the forward and backward movements of the traversing pin are regulated and made available to expel the cartridge-case and retract the ejector.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe its construction and operation.

In the accompanying drawings, A is the breech, formed in one piece with a tapering conical projection, A', which enters a corresponding socket in the lower part of the double cylinder or sleeve B B', the upper chamber of this cylinder being occupied by the barrel C. A collar, A², having a flange, a , fits upon the forward end of the pintle A', and is securely retained thereon by the jam-nut c' , which is screwed upon the forward extremity of the pintle A'. The portion of the projection A' upon which fit the collar A² and jam-nut c' is made smaller than the remainder, in order that the peripheries of the projection, collar, and jam-nut may be coincident. The flange a of the collar is held back against the shoulder b , and thus, with the pintle and jam-nut, constitutes the coupling or connection between the barrel and breech.

The stock D is recessed at its rear end for the accommodation of the jam-nut C', and the stock is also offset, so as to fit between the barrel and jam-nut and sleeve B B'. The stock is secured to the barrel near its forward end by a metallic strap or band, D', Fig. 12. The barrel C, with the sleeve B B', is adapted to rotate within a certain range upon the projection A', which thus constitutes a pintle or axis-pin for the barrel, the latter being partially rotated, to permit the insertion and ejection of the cartridges at the rear end. In the flange a (see Fig. 10) is a recess, a' , the two sides of which form shoulders, to engage a pin, b' , Fig. 3, on the interior of the sleeve B B', and thus limit the rotary movement of the

barrel, so as, on being turned opened, to arrest it in convenient position for the insertion of the cartridge, and on being turned into position for firing to retain it in proper position to be locked by the spring lever-catch E, which takes into a small recess, b^1 , in the rear upper side of the cylinder B.

F is a metallic block rigidly secured to the under side of the barrel, and located between the same and the stock D at a point somewhat in advance of the axle of the barrel. Through this block works a bar, G, which is adapted to slide longitudinally beneath the barrel, and to impart a corresponding movement to the bar G' , the two being rigidly connected in such a manner as to form a shoulder just behind the block F when in their most advanced position. The bar G' carries the ejector g , to receive which is a recess formed in the under side of the rear end of the bore. The bar G' works through a corresponding aperture, b^1 , in the sleeve B B'.

G^2 is a bar placed beneath the bars G G', with its forward end inserted through the opening in the block F, and adapted to receive a limited longitudinal movement independently of the bars G G' by having a projection, g' , on its upper side, which moves within a slot, g^2 , in the bar G' . On the bar G, and between the forward end thereof and the block F, is placed a spiral spring, I, for the purpose of retracting the ejector. The rear end of the bar G^2 carries a small downwardly-projecting pin, g^3 , which, as the barrel is turned so as to receive its charge, comes in contact with a cam, a' , on the collar A'. This cam is of such form that, as the turning of the barrel continues, the pin g^3 , by moving in contact with the edge of the same, is caused to move backward, and the pin, being thus actuated, communicates its backward movement to the bars G G', the result of which is to throw the ejector g beyond the rear end of the bore, and thus expel the shell of the cartridge which may have been previously exploded. The retraction of the bar G contracts the spring I between its end and the block F, so that as soon as the pin g^3 passes the backwardly-projecting point of the cam a' the spring I throws forward the bars G G' G^2 , when the pin rests against the base or lower face of the cam in the same transverse plane as the normal position of said pin. When the pin g^3 reaches this point, the spring I ceases to act upon the retracting-rods G G', the ejector g having been returned to its place in the end of the barrel. The cartridge being inserted, the return movement to close the barrel commences, and during this movement the pin g^3 traverses the lower and front edges of the cam a' . The pin g^3 , with its bar G^2 , is thus moved forward, and if the action of the spring I has failed to draw the ejector g entirely within its place in the barrel, in consequence of the fouling of said ejector, the bar G^2 comes in contact with the rear

end of the bar G, and presses forcibly against it until the bars G G' and ejector g have assumed their most advanced position. In traversing the front part of the cam a' , the forward end of the bar G^2 presses upon the spring I and contracts it, so that when the pin g^3 passes the upper forward point of the cam a' and is released from contact therewith the spring I throws it back to its normal position, with the rear end of the projection g' against the rear end of the slot in the bar G' ; hence it will be seen that the same movement which the barrel undergoes in being opened or turned aside causes the pin g^3 to circulate around the cam a' , and the ejector to be projected and retracted to its place within the barrel, so that when the barrel has been turned open to a convenient position the shell of the exploded cartridge will have been expelled from the barrel and the ejector returned, the barrel being thus made ready for the reception of a new cartridge without the necessity of turning it toward its closed position, or a reversal of the movement by which the projection of the ejector was accomplished, and without any special manipulation for that purpose.

The collar A' may be readily removed, and is employed for the purpose of adapting the cam a' to be more readily and cheaply replaced if it should become injured or impaired by use. The proper position of the collar A' upon the axle A' is insured by a pin or projection, a^2 , Fig. 6, over which fits a recess, a^2 , Fig. 10, on the collar.

Fig. 9 illustrates the employment of an independent spring, i , to throw the bar G^2 to its normal position after having made a circuit about the cam a' . In this modification the bar G is made hollow, and in it works a rod, i , which forms the connecting medium between the spring i and bar G^2 .

To throw back the hammer J after striking, and for the purpose of preventing it from intercepting or retarding the turning of the barrel, it has hitherto been customary to employ an independent spring inserted between the hammer and the recoil-plate of the breech. This spring adds to the complication of the arm and is very liable to become impaired. To obviate this objection, I construct the spring in one piece with the guard K, as shown at K'. This spring K' extends upward through an opening in the breech, and exerts a backward pressure upon the hammer J, and while it presents no material resisting force to the stroke of the latter, it holds the beak a little behind the recoil-plate A', and throws it to such position directly after it has been impelled against the cartridge.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The cam a' , employed in connection with a circulating-pin, g^3 , and a bar or bars G G', and the bar G^2 , and spring I, (or springs I i , Fig. 9,) to effect the projection and retraction

of the cartridge-shell ejector during the movement which the barrel undergoes in being opened to receive its charge, substantially as and for the purposes explained.

2. Forming the cam a' on a removable collar, A^2 , for the purpose of adapting said cam to be readily and cheaply replaced, as herein set forth.

3. The arrangement of the retracting bar or bars G & G' , the bar G^2 , and spring I , (or springs I^1 , Fig. 9,) whereby the forward and

backward movements of the circulating-pin \bar{g}^3 are made available in projecting and retracting the ejector.

The above specification of my improvement in breech-loading fire-arms signed this 5th day of August, 1864.

WILLIAM JOHNSTON.

Witnesses:

EDWARD H. KNIGHT,
CHARLES D. SMITH.