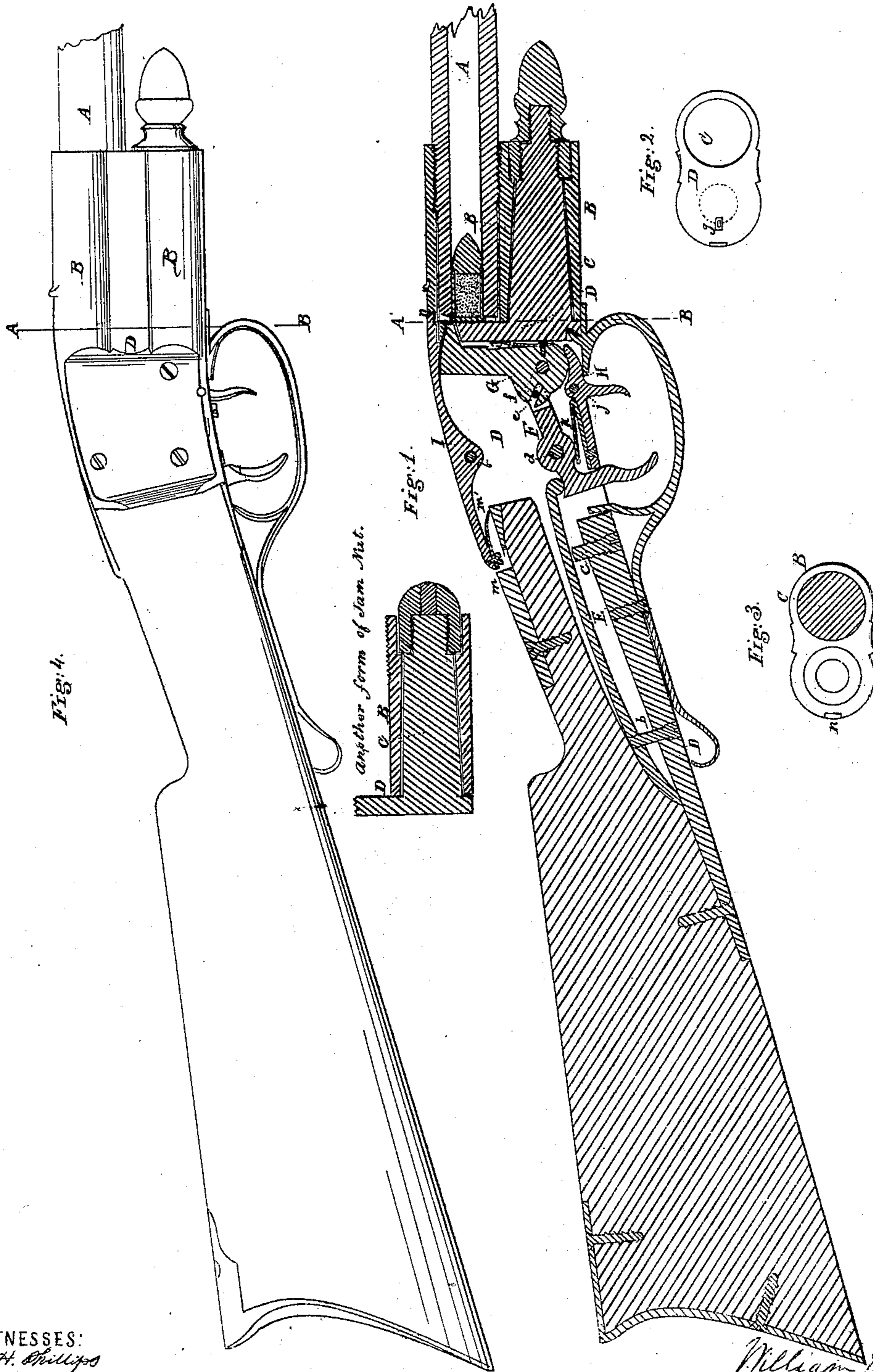


W. JOHNSTON.
Breech-Loading Fire-Arm.

No. 35,241

Patented May 13, 1862.



WITNESSES:
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IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 35,241, dated May 13, 1862.

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 Improved Fire-Arm, the same being a breech-loading gun; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings as a part of this specification, in which—

Figure I is a vertical central section of a part of my gun. Fig. II is a cross-section on the line A B in red ink, exhibiting the front end of the breech D; and Fig. III is a cross-section on the line A' B' in red ink, exhibiting the butt-end of the barrel and the axle looking toward the muzzle of the said gun.

The object of this invention is to supply for the purposes of field-sports, hunting, and war a new and improved fire-arm at once strong, simple, cheap, safe, convenient, and efficient; and to enable persons skilled in the art to understand and construct this gun so invented I proceed to give this description thereof.

A in Fig. I represents the barrel, to be made of steel, iron, or any other suitable metal, and may be either smooth-bored or rifled, and in either case should be reamed out a little wider and into a conical form at the butt, to receive the cartridge, so that after each discharge the shell may be more readily extracted from the gun. The butt end of the barrel within the recess in Fig. III should be rounded into a flattened hemisphere, so as to make the angle between the bore and the end of the barrel somewhat acute, as seen more distinctly in Fig. I.

B in Figs. I and III represents a double cylinder or sleeve for a medium-sized gun, three inches long, whereby the barrel is coupled to the breech, the barrel being firmly fastened in the upper cylinder, and the axle on which it turns inserted in the lower cylinder. This double cylinder or sleeve should be made of steel or iron case-hardened, and where the barrel is made of soft metal it should extend only half-way through the cylinder or sleeve, and the remaining half of the sleeve—say, one and a half inch—should be of the same bore as the barrel, reamed out and fitted, as above described, to receive the cartridge, so as to secure a steel or case-hardened surface at the butt-end, where the cartridge is inserted; or this double cylinder or sleeve, instead of being

a separate piece of metal, may be made of the same piece with the barrel worked in the solid.

C in Figs. I and III is an axle wrought in the solid of the same piece of steel or iron with the breech D, on which the double cylinder B turns to open and close the chamber in the butt of the barrel, wherein the cartridge is inserted in loading the gun. This axle, in a medium-sized gun, should be three inches long, so as to secure steadiness of position and smoothness and regularity of motion. It should be as thick at its base as the barrel of the gun, so as to insure equal strength in case the gun should be used as a club or made the handle to a bayonet, and to prevent bending or breaking by accident. It should also be strongly conical or tapered, so that if by use it should become too loose it can be tightened again by means of the screw-nut at the front end or point of the cone. This axle should be secured in the double cylinder B by means of a double or jam nut, so as to prevent it from becoming accidentally too tight or too loose in using the gun. Where no wooden stock is used above the coupling, the jam-nut may be finished with an ornamental knob of any figure. Where a wooden stock is to be used, the jam-nut may be recessed in the coupling-cylinder B, so as to leave a shallow socket for the end of the wooden stock.

D in Figs. I and II represents the breech, to be made of steel or iron, case-hardened, with the axle C above described, forming the front end thereof, and two straps extending backward—a short one on the top and a long one at the bottom—to be let into and screwed fast to the stock, and to serve as a support to other parts of the work, as hereinafter described. This breech-piece to be pierced through vertically with a slot, in which slot the lock of the gun is placed, and its different parts held in place and made to turn on screws or pins, as represented in Fig. I.

E in Fig. I represents the mainspring of the lock, being a single strip of steel, slightly curved, with a rounded beak at the front end, pressing on the heel of the lever F, and the other end resting on the lower strap of the breech D, and secured in its place by the screw *b*, and checked in its motion downward by the temper-screw *c*, as shown in Fig. I.

F in Fig. I represents a lever turning on the pin *d*, on whose heel the rounded beak of

the mainspring presses to give it motion. One arm of this lever E protrudes downward into the bow of the guard, and serves as a handle, whereby the gun is cocked, and another arm passes forward in two branches, one on each side of the heel of the cock G, made thin for that purpose, where, by means of a pin, *e*, working in a slot in the heel of the cock, it gives motion thereto.

G in Fig. I is the cock, turning on the pin *f*, and connected, as above stated, by the pin *e* with the lever E, and put in motion thereby. The beak of the cock passes through a small slot in the breech-piece D, as shown at *g* in Fig. II, where it strikes the cartridge, and recoils again to a distance sufficient to secure it from being broken or damaged, or the cartridge or the end of the barrel or coupling-cylinder from being accidentally marred in turning off the barrel. The base of the cock forms the tumbler on which the dog H fastens in cocking the gun, and the recoil of the cock is produced in the following manner: First, the temper-screw *c* in D, Fig. I, stops the mainspring E before the blow of the cock is exhausted, so that the cock moves a short distance by momentum; second, to the base of the cock, on the front side, is fastened a small spring, *i*, which, after the blow is struck, drives the cock back till the heel of the lever F comes to its bearing on the beak of the mainspring E. The distance of the recoil may be made greater or less at pleasure, by turning the temper-screw *c*, but should be made no greater than is necessary to secure safety. It is evident that the small spring *i* may be screwed to the breech-piece D or arranged in other equivalent modes, so as to produce the effect intended.

H in Fig. I represents the dog turning on the pin *j*, one arm of which protrudes downward into the bow of the guard and forms the trigger, and another extends backward nearly to the lower arm of the lever F, and has the sear-spring *k* fastened to the upper side thereof by a screw, so that the free end thereof presses on a rounded swell in the lever F at its turning-point on the pin *d* in Fig. I.

I in Fig. I represents a stop-lever or key, turning on the pin *l* in the slot, wherein the lock is placed, and extending backward in a groove to a point, *m*, where the thumb is pressed upon it to unlock the barrel, and the small spring *m'*, producing reaction, locks it again, and, extending forward in a groove and locking by the force of the spring *m'* in a notch, as shown at *n* in Figs. I and III, in the rear end of the double cylinder B, so as to hold the breech and the barrel in a straight line.

When the gun is to be charged, the process is this: The left hand is to be placed on the

barrel and the right hand on the breech in the ordinary attitude of firing the gun. The thumb is placed on the rear end of the lever I, immediately over the small spring *m'*, by which the rear end is pressed downward and the front end upward, so as to release it from the notch *n*. The barrel is then turned off to an angle of ninety degrees by an eccentric movement, the cartridge inserted by the thumb and finger, and the barrel turned back to its former position, where the lever I, being released from the pressure of the thumb, again locks the barrel in line with the breech by automatic movement. Immediately after the gun is discharged the barrel should be turned off in the above manner, and the empty shell of the discharged cartridge removed, and, in case of rapid firing, a fresh cartridge inserted before the barrel is returned to its position.

In my improved gun I use a copper cartridge, with detonating powder in its base, gunpowder in the middle, and a ball in the mouth, similar to that now in use, with this improvement, that it is diminished by a regular taper from the flange at the base to the ball at the mouth, so that when properly lubricated and inserted in a bore of equal taper the shell will come out after the gun is discharged without the aid of instruments or machinery.

In the foregoing specification I have in several instances stated the dimensions and proportions of some of the parts. I do not intend to limit myself to those exact proportions, but merely to give such as I prefer using.

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

1. The axle C, constructed of a conical or tapering form when used in the manner and for the purpose above described.

2. The causing of the cock G to recoil at each discharge by the use of a spring, *i*, and a stop, *c*, or their equivalents, substantially in the manner and for the purpose above described.

3. In breech-loading guns so arranged as to be loaded by the insertion of the cartridge from the rear, the construction of the chamber, (which is to receive the cartridge,) in the form of the frustum of a cone having the base of the cone at the lowered rear end of the chamber, when that chamber is so arranged that access may be readily had thereto for the purpose of removing with the thumb and finger the shell of a metallic cartridge after each discharge, substantially in the manner and for the purpose above specified.

WILLIAM JOHNSTON.

Witnesses:

H. L. JONES,
THOMAS HAGERTY.