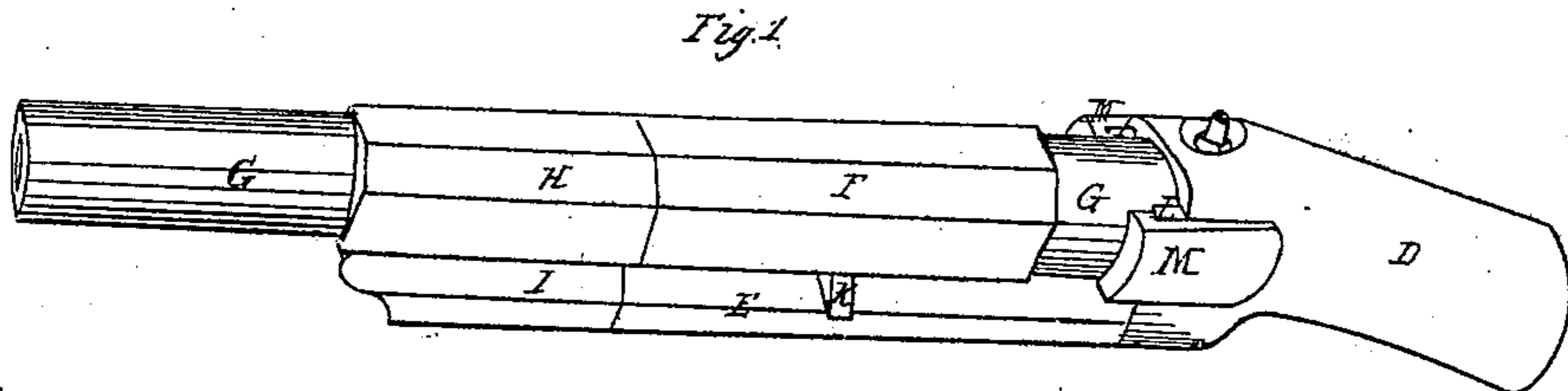
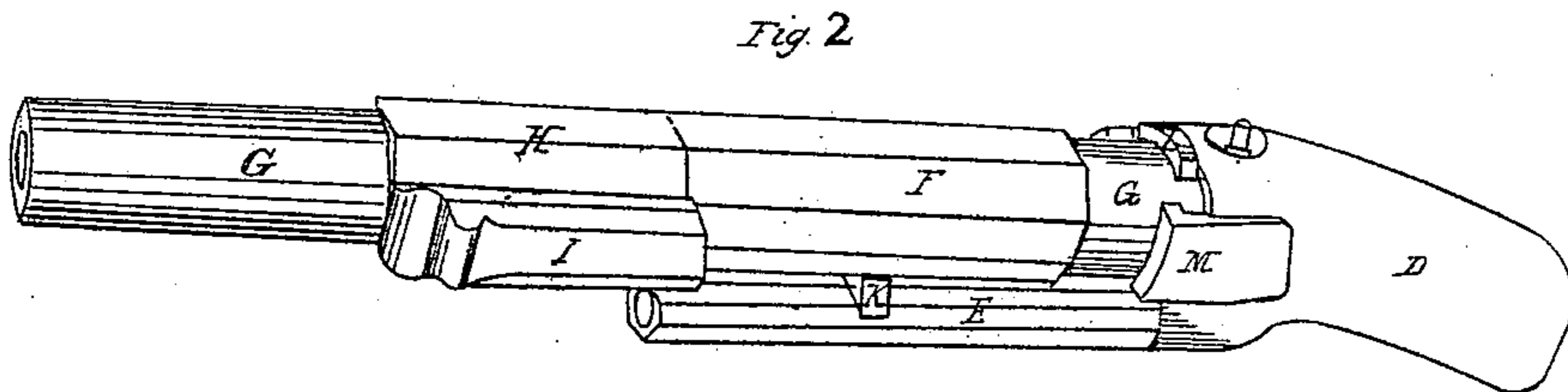
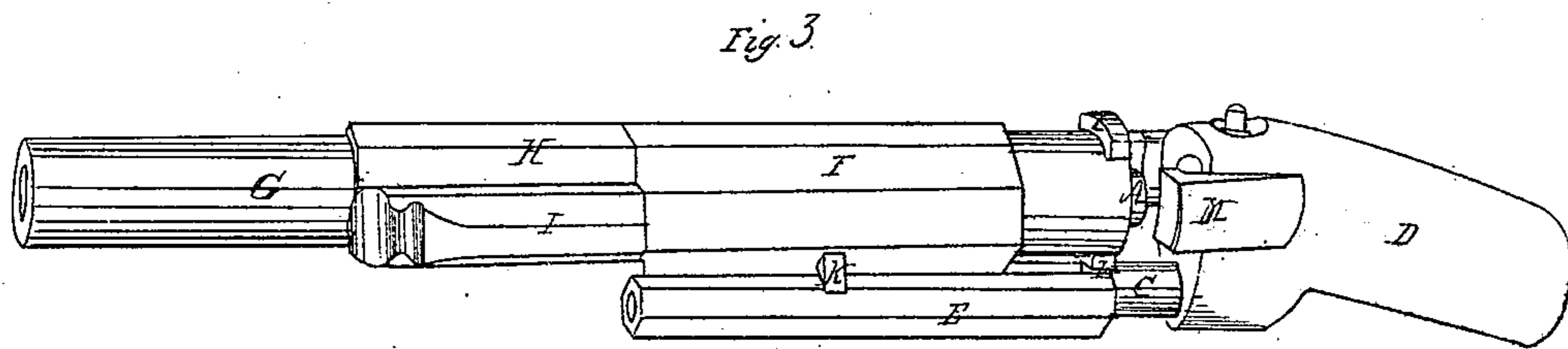
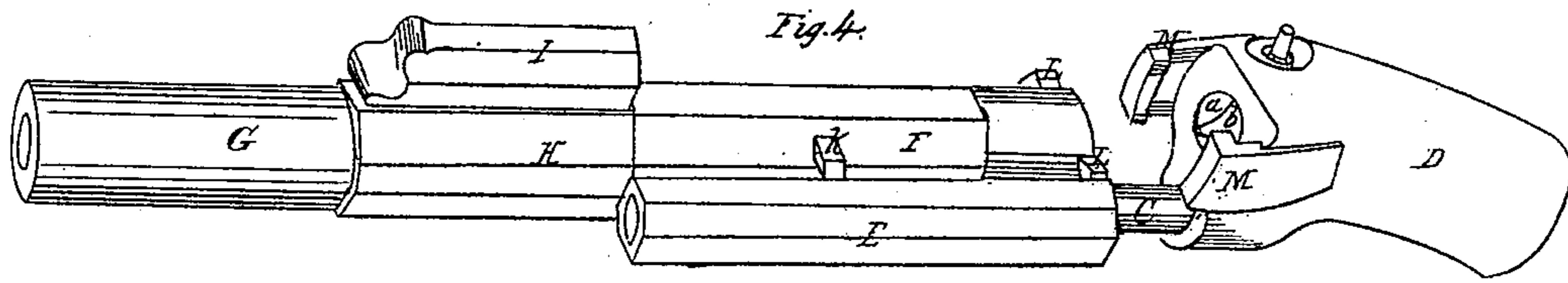


J. D. GREENE.

Breech-Loading Fire-Arm.

No. 11,157.

Patented June 27, 1854.



Witnesses:

Sam. Cooper
John S. Snow

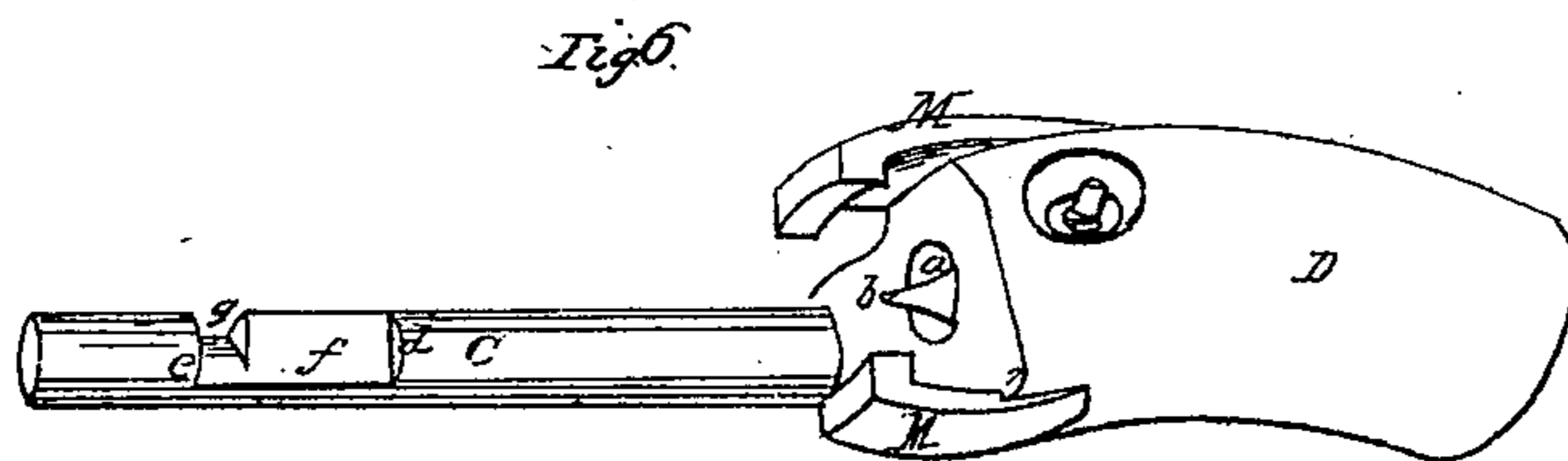
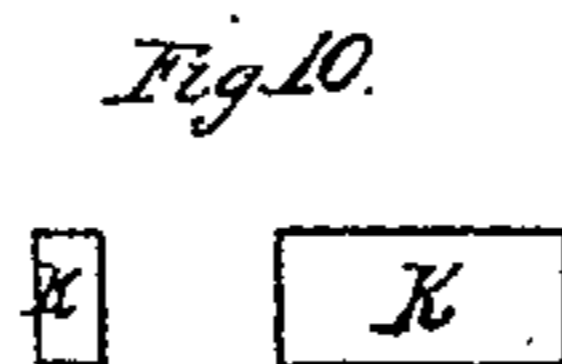
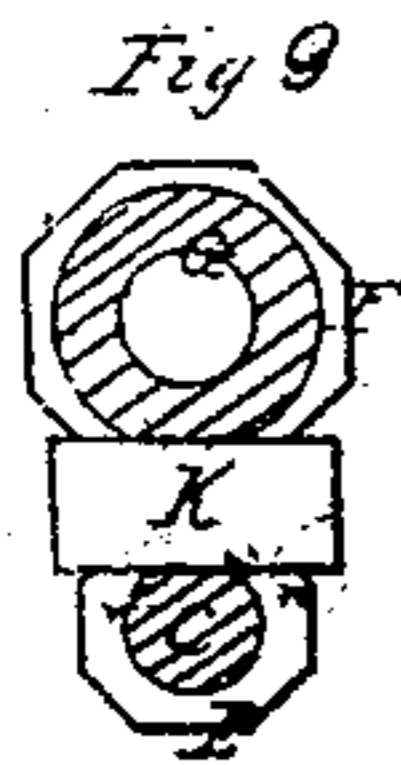
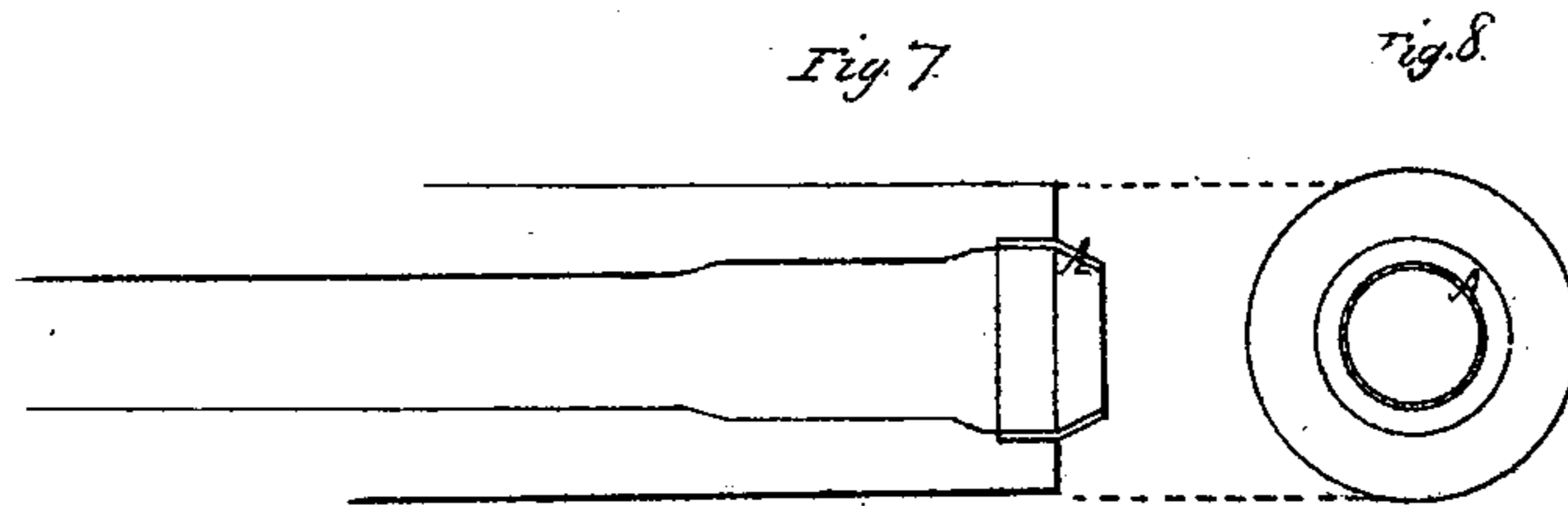
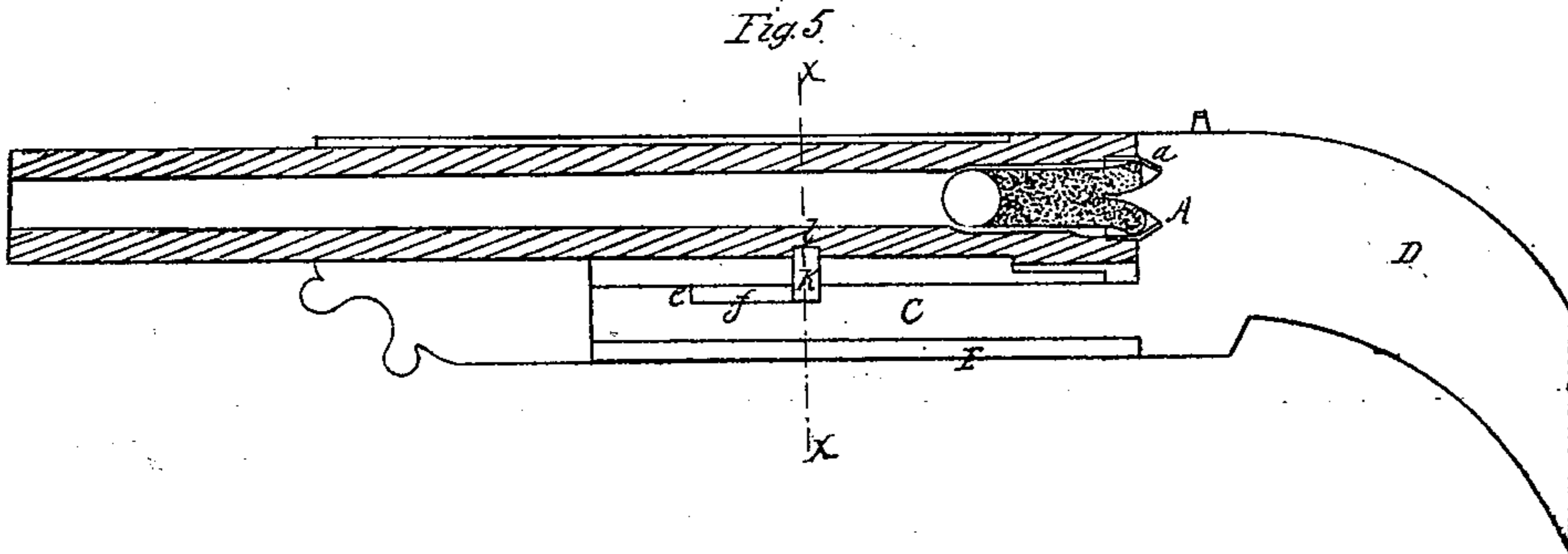
Inventor:

J. D. Greene

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Witnesses:
Sam. Cooper
John S. Blow

Inventor:
J. D. Greene

UNITED STATES PATENT OFFICE.

J. D. GREENE, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 11,157, dated June 27, 1854.

To all whom it may concern:

Be it known that I, J. DURELL GREENE, of Cambridge, in the county of Middlesex and State of Massachusetts, have made certain new and useful Improvements in Breech-Loading Fire-Arms, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figures 1, 2, 3, and 4 are perspective representations of the different positions which my gun assumes in loading and firing; Fig. 5, a longitudinal section through a gun with my improvements attached; Fig. 6, a view of the spindle by which the barrel is attached to the breech; Fig. 7, a section through the self-adjusting thimble of full size; Fig. 8, an end view of the barrel and thimble; Fig. 9, a section on the line X X of Fig. 5; Fig. 10, an end and side view of the key by which the barrel is secured to the spindle.

In breech-loading guns as heretofore constructed it has been found impossible to produce a perfectly tight joint between the barrel and the breech-piece, or at least a joint that should remain tight after the parts which hold the barrel and the breech together became ever so slightly worn by use. This difficulty arises partly from the fact that while the friction of the ball and of the discharge upon the bore of the barrel tends to carry the latter away from the breech, the force of the discharge upon the breech itself tends also to separate it from the barrel, and partly from the fact that the parts are constantly subjected to friction upon each other, while they are fouled by the products of combustion.

The first part of my invention consists in the use of a self-adjusting thimble, which is driven into the rear end of the barrel, and which is kept down upon its seat by the force of the discharge, the thimble not being absolutely secured to the barrel, but forced into its place sufficiently tight to prevent leakage between it and the barrel; but at the same time so as to allow it to yield to the force of the discharge and be driven out against its seat when, from wear of the parts, or from any other cause, the joint between the barrel and the breech becomes loose in ever so slight a degree.

My improvement also consists in a peculiar method of attaching or of securing the barrel to the breech of the gun, by which the barrel

may be expeditiously revolved for the purpose of loading and firing.

To enable others skilled in the art to make and use my invention, I will proceed to describe the method which I have adopted of carrying it out.

A is the self-adjusting thimble, which is made of steel, and of the form represented in full size in Figs. 7 and 8. It is adjusted to the rear of the barrel in such a manner that it may be driven therein with a force just sufficient to insure a tight joint between it and the barrel, and also to prevent it from being misplaced or knocked out. The seat upon which this thimble rests is also beveled to fit the bevel upon the thimble, as seen at *a*, Fig. 5, and is furnished with a conical point or piercer, *b*, through the center of which passes the fire from the nipple to the charge. The bearing surfaces of the thimble and its seat are ground together with emery, and a tight joint is thus at first produced. The peculiar action of this part of my invention is as follows: Owing to the form of the thimble A, Fig. 7, the force of the discharge exerted upon the interior surface of the conical portion tends constantly to force it backward out of the barrel, and down upon its seat, by which action any looseness of the joint between the barrel and the breech is closed, and the joint is kept at all times tight.

The barrel is secured to the breech in the following manner:

C is a spindle attached to the breech D, and cut away, as seen at *f*, Fig. 6. E is a sleeve fitted to this spindle, and to which is attached the cylinder F. Within this cylinder the barrel of the gun G is allowed to make a partial revolution. The portions H and I are secured to the barrel and serve to assist in manipulating the same.

K is a key, which passes through the cylinder F and the sleeve E, and enters a notch, *i*, in the barrel. By this means the barrel is secured firmly to the cylinder F, and the two, together with the sleeve E, are permitted to slide forward upon the spindle C from *d* to *e*, when the pin K, entering the notch *g*, allows the barrel to make a quarter-revolution to bring it into position for loading, as will be hereinafter explained.

L are ears or wedge-shaped projections upon the interior end of the barrel, which, when the latter is in place and ready for firing, pass

under the hooks M, and hold the barrel firmly to the breech. It is found that it is not essential that these parts be so carefully made or fitted to each other as in ordinary breech-loading fire-arms, on account of the self-adjustability of the thimble A, for should there be a slight play of the parts, which in other breech-loading guns would cause leakage, the self-adjusting thimble will be thrown back an amount sufficient to bring it to a tight bearing upon its seat, and the leak would be closed on the first discharge.

Operation: In Fig. 1 the parts are represented in the position for firing, the barrel being secured to the breech by the ears L beneath the hooks M. To load the piece, the barrel is turned a quarter of a revolution to disengage the ears L from the hooks, as seen in Fig. 2. The barrel is then drawn forward into the position seen in Fig. 3, the motion of the barrel and the parts connected therewith being limited by the pin K striking against the shoulder e, Fig. 5, upon the spindle C. The barrel is now turned a quarter-revolution, as seen in Fig. 4, the pin K revolving into the notch g, Fig. 6, and the parts are thus brought into position for loading. The cartridge is now introduced through the thimble A, and the barrel is returned into the position shown in Fig. 1, the piercer b entering the cartridge, as seen in the section, Fig. 5.

The adherence of the paper of the cartridge to the breech has been found to be a hindrance to the ready manipulation of some breech-loading fire-arms. This inconvenience is en-

tirely removed by the peculiar form of the powder-chamber furnished by the thimble A, it being enlarged immediately within its entrance in such a manner that the paper is forced against the walls of the enlarged chamber and retained there until the next cartridge forces it forward, no portion of it adhering to the breech or to the conical piercer.

It is evident that the length of the thimble employed to bear upon the breech-piece is not material, so long as it is of sufficient length to be retained in position, and also to insure a tight joint between it and the barrel of the gun.

It is also apparent that the thimble may be applied to any species of breech-loading guns where the object is to obtain a tight joint between the barrel and the breech.

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

1. The self-adjusting thimble, constructed and operating in the manner substantially as described.

2. The peculiar manner herein described of locking the barrel to the breech by means of the wedge-formed ears L and the hooks M, in combination with the method described of controlling the forward and revolving motion of the barrel by means of the cylinder E, the sleeve F, and the spindle C, the whole being connected together by the key K, in the manner set forth.

J. DURELL GREENE.

Witnesses:

SAM. COOPER,
JOHN S. CLOW.