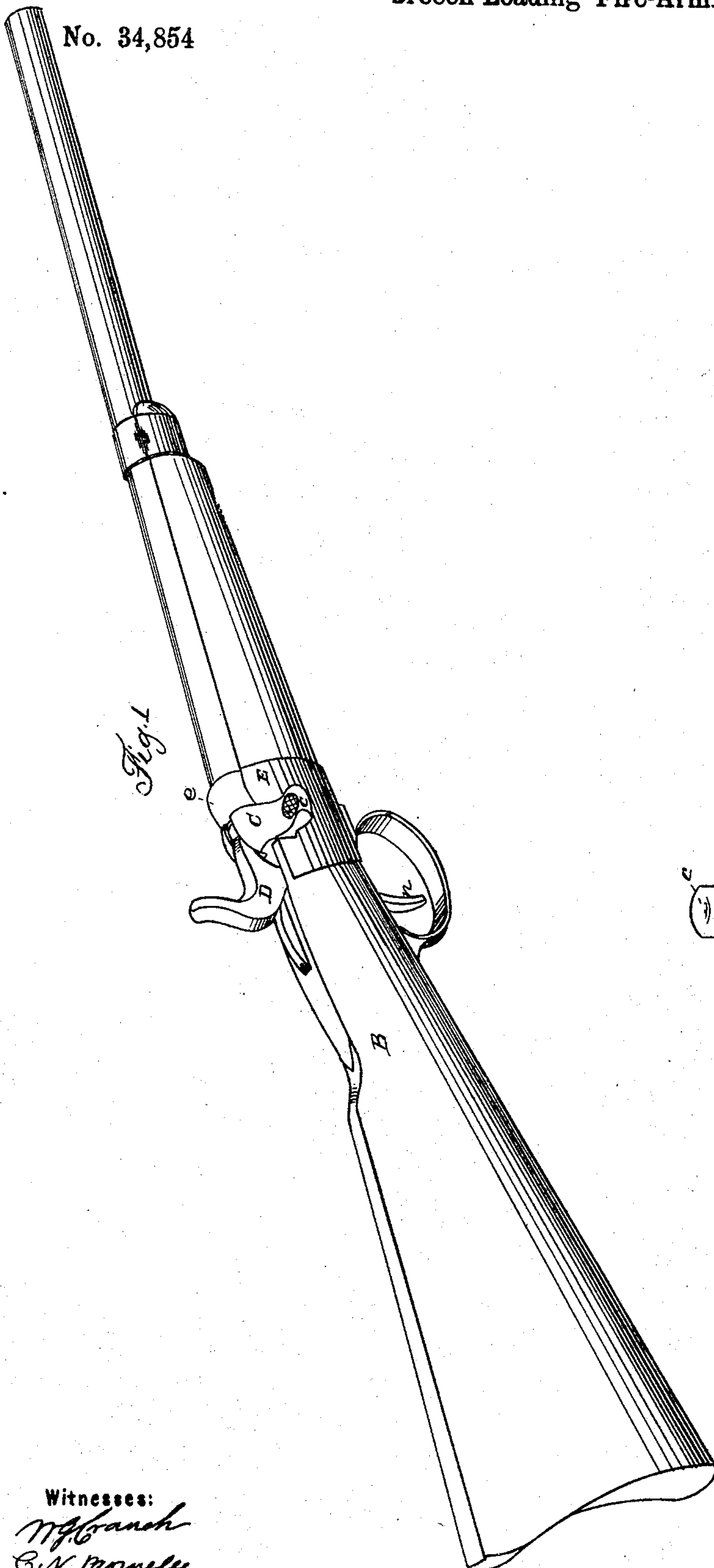


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Breech-Loading Fire-Arm.

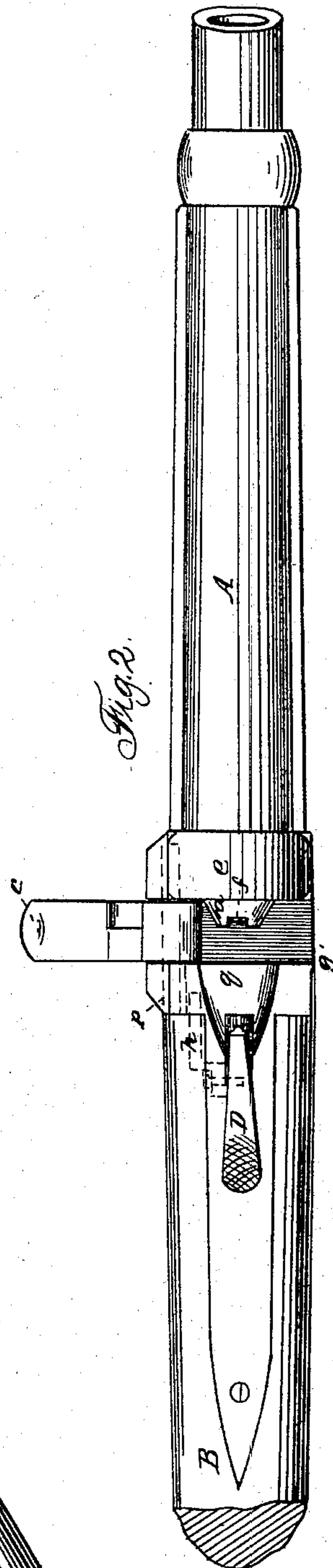
Patented Apr. 1, 1862.

No. 34,854



Witnesses:

Witnesses:
W. G. Branch
C. N. Parnell



Inventor:

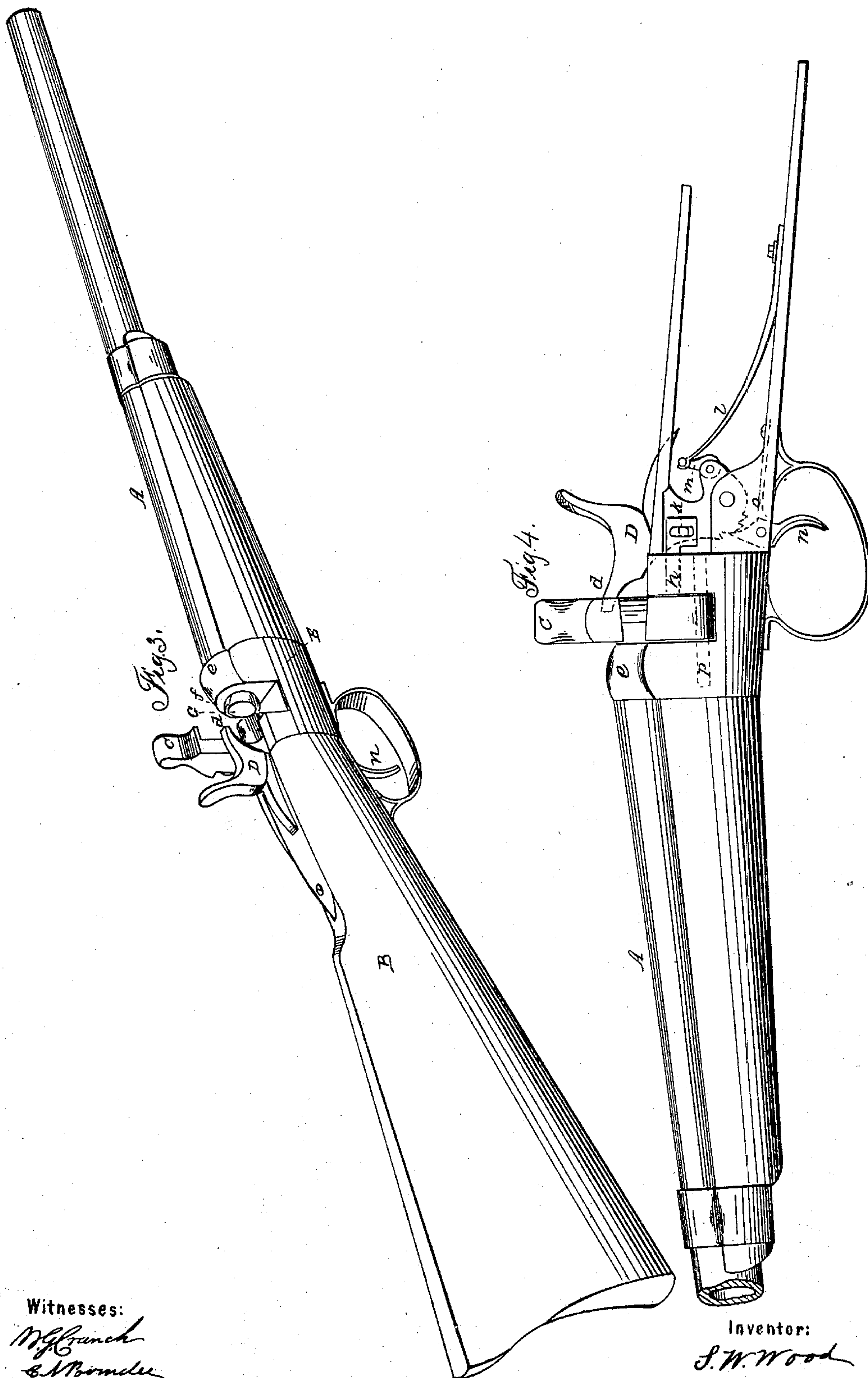
S. W. Wood

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Witnesses:

M. Branch
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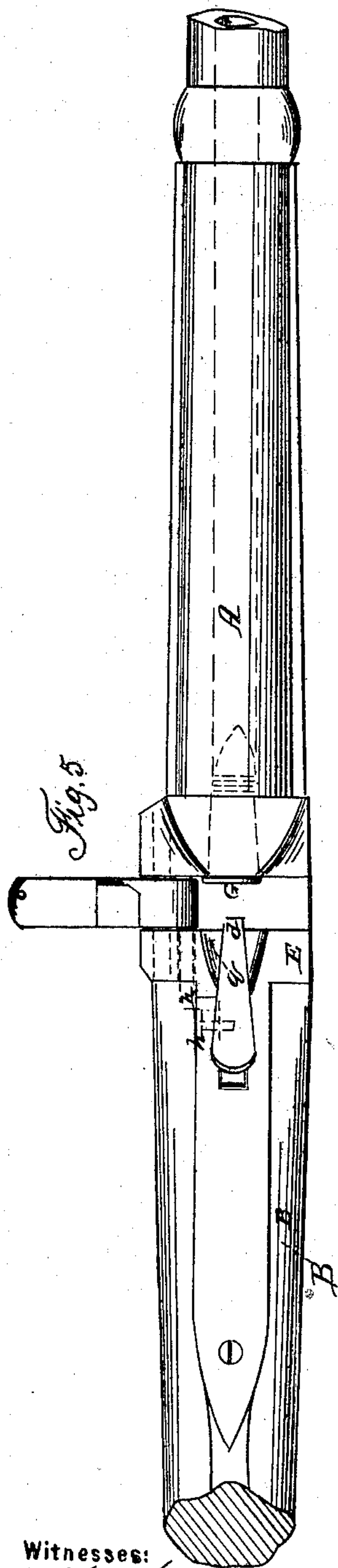
S. W. WOOD.

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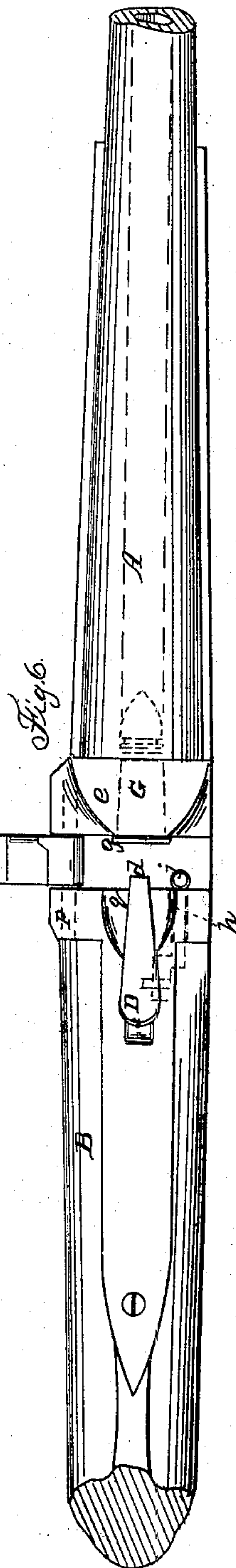
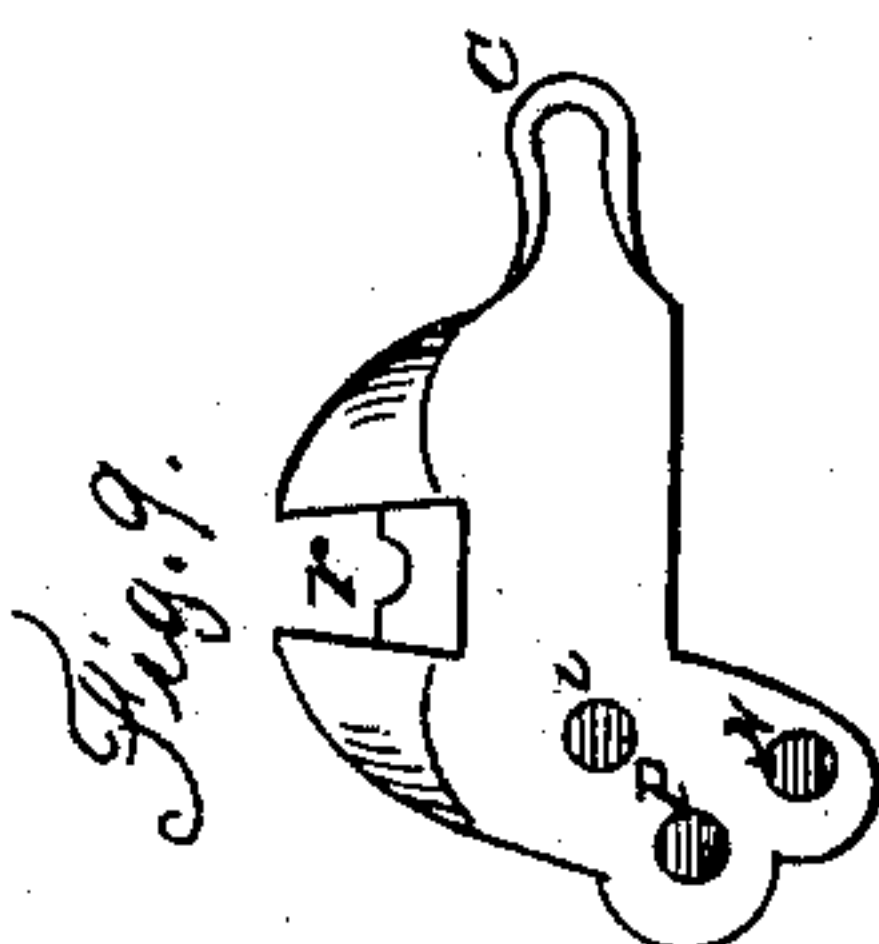
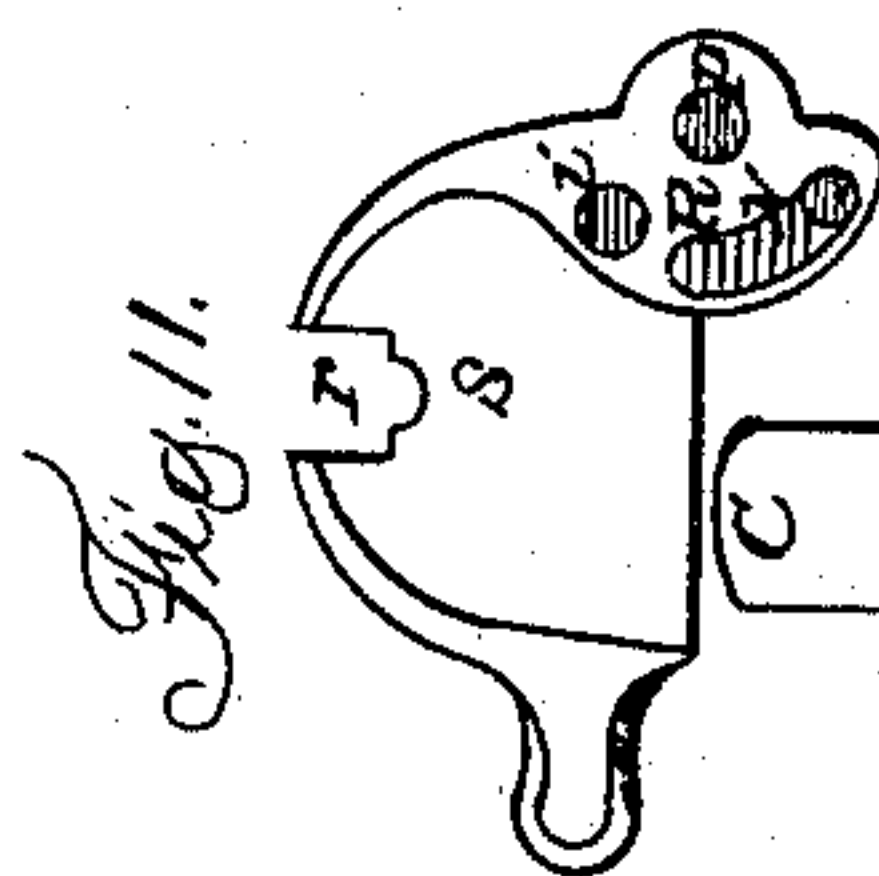
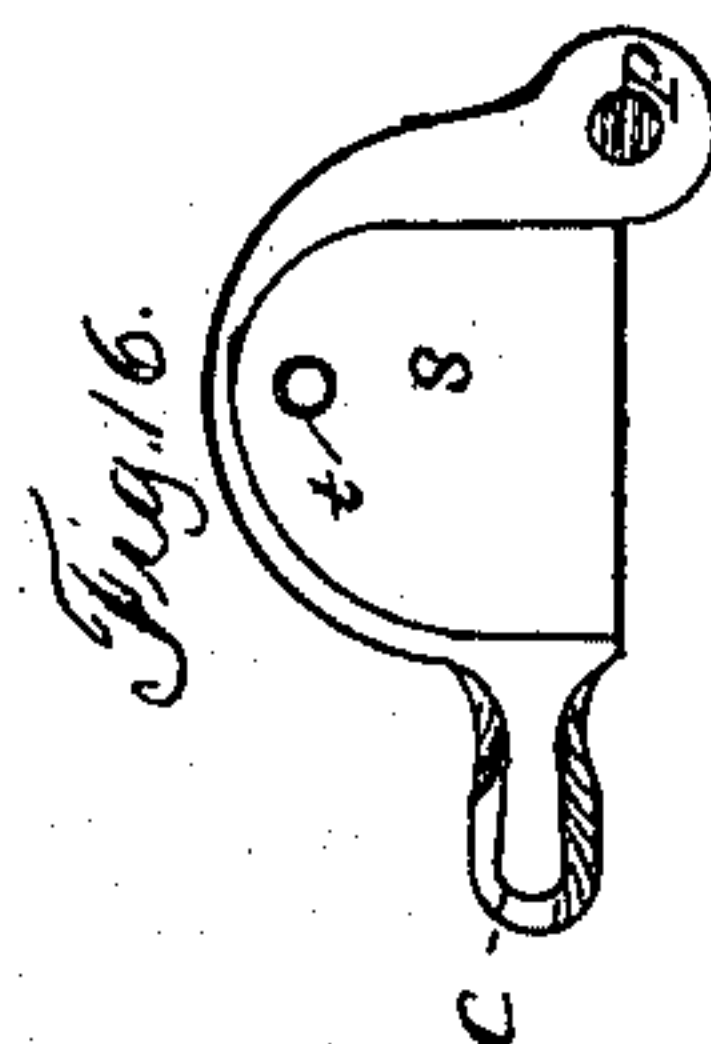
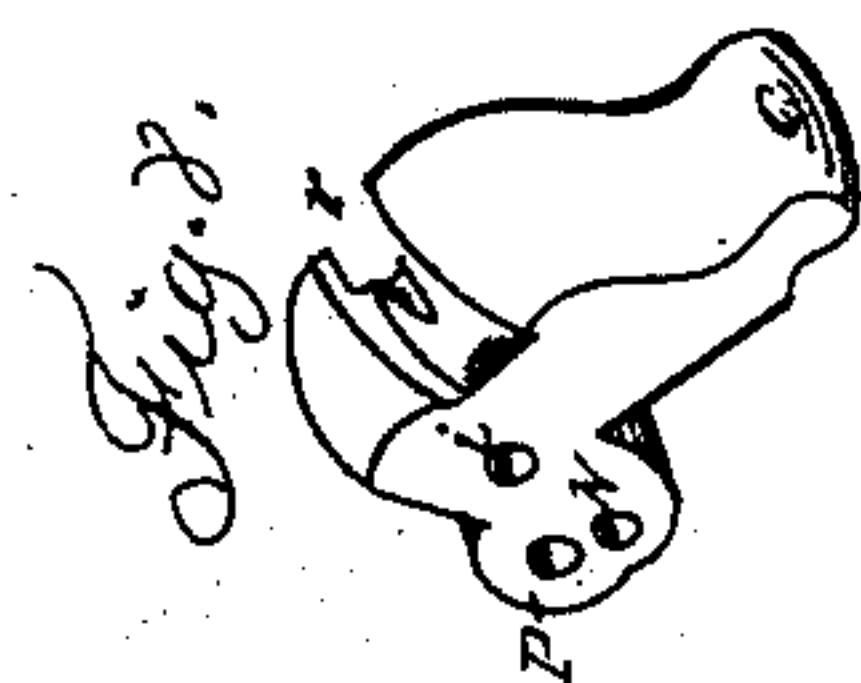
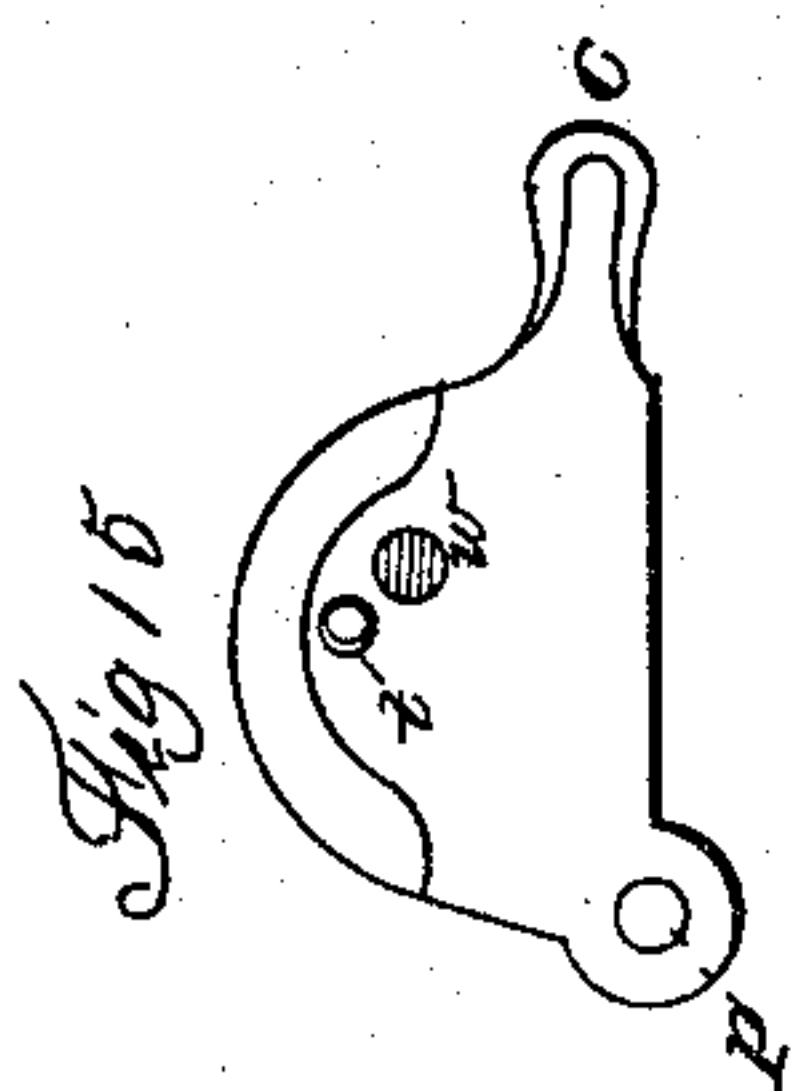
Breech-Loading Fire-Arm.

No. 34,854

Patented Apr. 1, 1862.



Witnesses:
W. G. French
C. A. Pomeroy



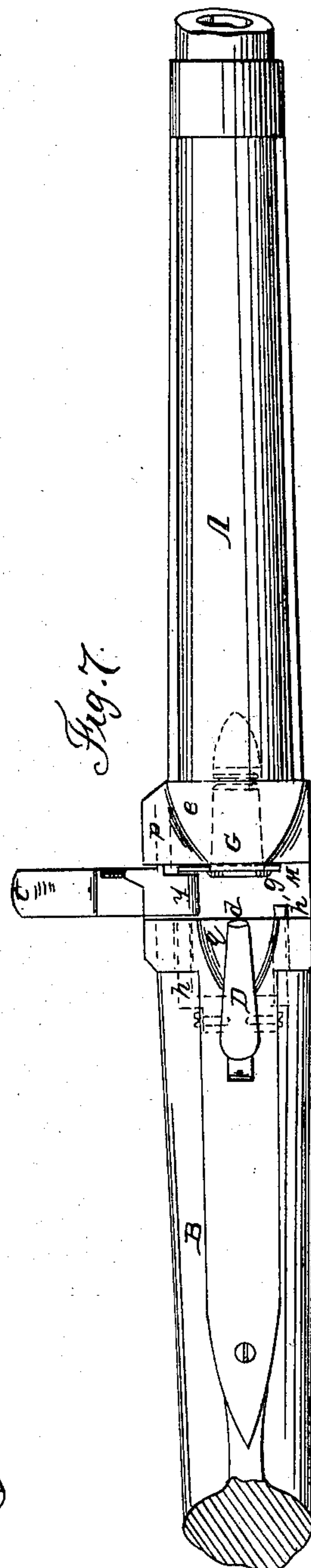
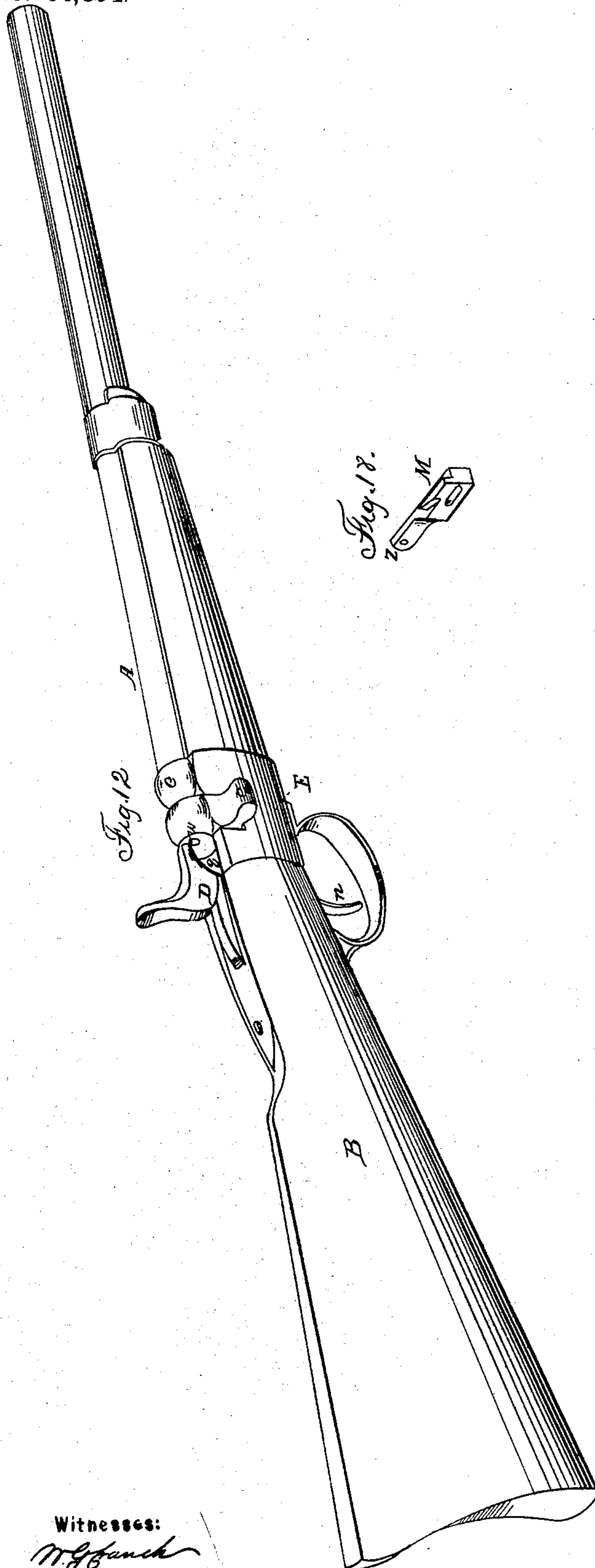
Inventor:
S. W. Wood

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Breech-Loading Fire-Arm.

No. 34,854.

Patented Apr. 1, 1862.



Witnesses:
M. G. Fanch
C. H. Parvill

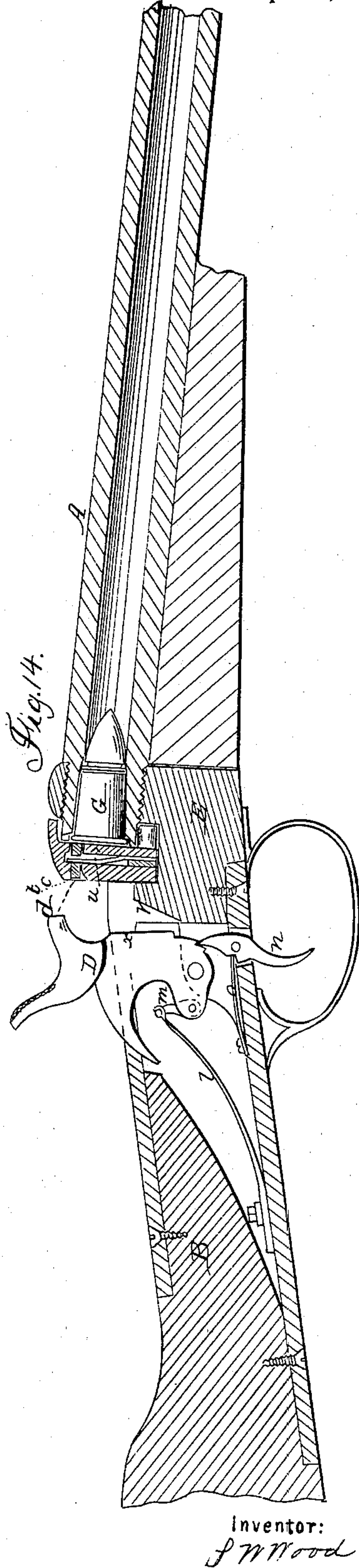
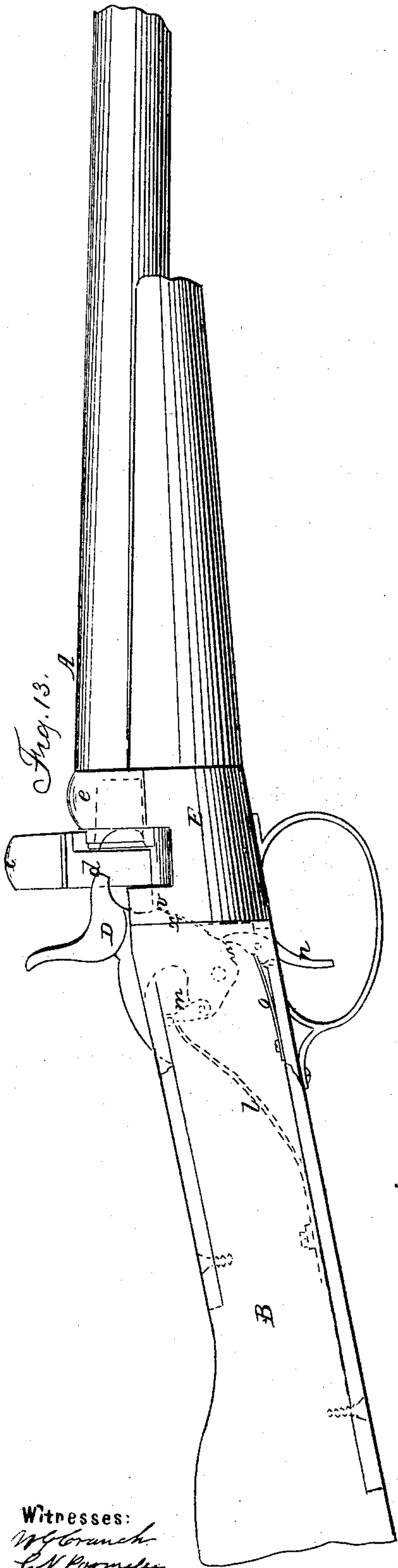
Inventor:
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Breech-Loading Fire-Arm.

No. 34,854

Patented Apr. 1, 1862.



UNITED STATES PATENT OFFICE.

S. W. WOOD, OF CORNWALL, NEW YORK.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 34,854, dated April 1, 1862.

To all whom it may concern:

Be it known that I, S. W. WOOD, of Cornwall, county of Orange and State of New York, have invented a new and useful Improvement in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making part of this specification:

Figure 1 being a view, in perspective, of a breech-loading rifle or musket provided with my improvements, the view representing the hammer down, as at the instant of firing. Fig. 2 is a top view of the same, the gate and hammer being raised, as for the purpose of loading; Fig. 3, a top view thereof, in perspective, showing the gate raised and the hammer at less than half-cock; Fig. 4, a side elevation, corresponding with Fig. 3, except that a portion of the stock is removed to show the construction of the lock; Fig. 5, a top view, showing a modified construction of the breech-piece, the gate being raised and the hammer at less than half-cock; Fig. 6, a top view, like Fig. 5, but showing a modified arrangement of the safety-bolt; Fig. 7, a top view, representing a modified arrangement of safety-bolts, two being employed instead of one—also showing a wedge-shaped slide operating between the rim of the cartridge and face of the chamber, and in position as having withdrawn the cartridge-case partially from the chamber; Figs. 8, 9, 10, and 11, respectively, rear perspective view, rear elevation, front perspective view, and front elevation of the gate; Fig. 12, a perspective view of the wedge-shaped slide to partially withdraw the metallic case from the chamber.

Like letters indicate corresponding parts in all the figures.

The main parts of the fire-arm are designated as the barrel A, the stock B, the gate C, the hammer D, and the breech-piece E. The barrel A, the stock B, and hammer D fulfill the usual purposes indicated by their names. The gate C is the movable part, which opens to allow the cartridge to be inserted into the breech of the barrel or chamber, and is closed again until the discharge takes place. The breech-piece E serves to unite the barrel and stock, and mount the gate, hammer, and

lock upon. There may be nothing essentially peculiar in the construction of the barrel A, except the rear end *a*, Fig. 2; nothing in the stock B, in the hammer D, except its face *d*; nor in the breech-piece E, except in the form of the band *e*, in the modifications to be described.

The cartridge G, to be used with this fire-arm, has a metallic case, (generally of copper,) which, by its expansion on the explosion of the charge, prevents any leakage of gas, and which also contains the fulminate, thus requiring only a blow on the cartridge from the hammer to explode it or fire the charge. The metallic case has an enlarged bead or rim, *g*, at the rear end, which holds the fulminate, and also serves to seize hold of to withdraw the case after the charge has been fired.

I prefer to make the cartridge-case slightly conical or tapering, to fit a corresponding shape of the rear end of the barrel-bore, as shown in the drawings, so that it may be readily inserted, and, fitting closely, be more easily withdrawn after the discharge.

The gate C is hinged at *p*, Figs. 2, 4, 6, and 7, in one side of the breech-piece E, and closes into a notch in said breech-piece, immediately behind the rear end of the barrel A, so as to close it for firing the charge. A knob, *c*, projects from the gate to handle it by.

The breech-piece is hollowed at *q*, Fig. 2, behind the gate-notch, to allow the free insertion of the cartridge into the end of the barrel or chamber.

A notch, *r*, Figs. 8, 9, 10, and 11, is made in the top of the gate, sufficient to expose a small portion of the rim of the cartridge and allow the face of the hammer to reach the same to explode the charge.

In order that the case of the exploded cartridge may be caught hold of and withdrawn by the fingers, the rear end *a*, Fig. 2, of the barrel A, projects somewhat into the gate-notch of the breech-piece, and this projecting portion is beveled, notched, hollowed, or otherwise shaped in a manner equivalent, as in Fig. 2, so that the rim of the cartridge-case may project at the sides sufficiently to get the fingers around the same to draw out the case.

If desired and deemed expedient, in order to provide for withdrawing the cases of car-

tridges varying in size and fitting the chamber tightly, a wedge-shaped slide, M, may be arranged in the gate-notch, as shown in Fig. 7, and operated by the gate, or otherwise, to withdraw, or partially withdraw, or loosen the cartridge-case from the chamber after the discharge. This wedge may be drawn or forced between the rim of the cartridge and face of the chamber or barrel by means of a pin, y, projecting from the front side of the gate C, entering an aperture, z, near the end of said slide in opening the gate, and withdrawn therefrom by closing the gate, or may be operated by other mechanism, or by the fingers.

In connection with the projection of the barrel into the gate-notch of the breech-piece the front face of the gate is countersunk or hollowed, as seen at s in several figures, (10, 11, and 16,) so as to admit and inclose the said projection together with the cartridge, the bottom of the countersink shutting down just behind the same.

Instead of the rear end of the barrel extending into the gate-notch and beveled, the band e of the breech-piece may be thus beveled, notched, hollowed, or countersunk, as shown in Figs. 5 and 6, to allow the cartridge-case to be caught hold of and withdrawn.

The rear end of the barrel is also countersunk sufficiently to allow the bead or rim g of the cartridge-case to enter just inside of the rear surface of the barrel or chamber, as seen in Fig. 2, in order to enable the projecting lip or part of the barrel thus formed to protect the cartridge from the closing gate, and thereby prevent any liability of premature explosion by the gate striking against the cartridge; the band e may be countersunk to perform the same office of protecting the cartridge, if preferred.

The hammer D is mounted centrally in the stock, and is actuated by the mainspring l and connecting-link m, substantially as shown in Figs. 4 and 14; these pieces, together with the trigger and trigger-spring o, constitute the whole lock.

For the purpose of preventing the hammer's descending on the cartridge when the gate is open, a safety-bolt, h, Figs. 2 and 4, is employed, substantially as follows: It slides in the breech-piece, behind the hinged end of the gate, the position being such that its front end bears against the rear face of the gate in whatever position the gate may be, except when fully closed, and, in the latter case, the bolt may enter an aperture, i, Figs. 8, 9, 10, and 11, in the gate. The bolt h is directly connected with the hammer D by means of a pin, k, projecting from the face of said hammer through a slot in the bolt, as shown at Figs. 4 and 5, or by other equivalent means, so that the bolt must have a certain extent of forward motion as the hammer descends. The length and position of the bolt are such that the hammer can only partly descend before

the bolt strikes the gate, and prevents the possibility of the hammer's reaching the cartridge while the gate is open or partly open. As soon as the gate is closed, the aperture i is brought opposite to the safety-bolt, which then may enter it, and thus allow the hammer to descend upon the cartridge. Two bolts may be arranged as seen in Fig. 7; one bolt bearing against the face of the gate, while the other projects into the gate-notch, thereby preventing the gate's being closed until the hammer is at least at half-cock, thus withdrawing the bolt h' within the rear face of the gate-notch. Any arrangement of the bolt or bolts different from those described, or any modification thereof accomplishing the same result by the same principle of mechanism, is considered the equivalent thereof.

As a still different arrangement of the bolt, Fig. 6 represents it being placed on the side of the hammer farthest from the hinge of the gate, so that it would not bear on the gate when fully opened. In such a case a spring-stop, j, may rise before the bolt from the bottom of the gate-notch or recess as the gate is lifted away from it, and it is again pushed down as the gate descends to replace it. In this way the same result is arrived at by equivalent means.

In addition to the safety-bolt with its modifications to secure against the possibility of premature explosion, the hammer, even when held back by the safety-bolt, should not be at less than half-cock as the gate is finally closed; otherwise, then the hammer would descend to the cartridge at once. To provide against this, the face d of the hammer may be made of such length in relation to the safety-bolt that as long as at less than half-cock it will extend farther forward than the rear face of the gate when the safety-bolt bears against the same, as indicated in Figs. 3, 4, 5, and 6. Thus, while the hammer is in that position of insecurity, the gate cannot be closed, and the hammer must be brought at least to half-cock before the gate can descend; or, to prevent closing the gate when the hammer is less than half-cock, a countersink, n, as seen in Figs. 8 and 9, may be made in the face of the gate to receive the end of the safety-bolt, the length and motion of the safety-bolt being such that the hammer must be at least at half-cock to withdraw it from the countersink to allow the gate to close. An elongated countersink or groove, R, Fig. 11, receiving the bolt and giving limited motion back and forth to the gate, but not permitting it to be closed until the hammer is at least to half-cock and withdrawn from the groove, may be substituted, if desired.

Having thus fully described my improvement in breech-loading fire-arms, what I claim therein as new, and desire to secure by Letters Patent, is—

1. Countersinking the front face of the gate

so as to admit and inclose the rear projecting end of the barrel and cartridge, for the purpose specified.

2. The safety-bolt *h*, arranged substantially as described, for the purpose of preventing the descent of the hammer while the gate is open; and in combination therewith the aperture *i*, or its equivalent, to allow the hammer to descend when the gate is entirely closed, substantially as specified.

3. The combined arrangement of the ham-

mer and safety bolt or bolts in such a manner as to prevent the closing of the gate, so long as the hammer is less than at half-cock.

4. A wedge, *M*, for the purpose of starting the case of the exploded cartridge from the barrel or chamber, arranged substantially as described.

S. W. WOOD.

Witnesses:

W. G. CRANCH,
C. N. PARMELEE.