(No Model.)

3 Sheets--Sheet 1.

L. A. STAVE.

Breech Loading Fire Arm.

No. 232,214. **Patented Sept. 14, 1880.**

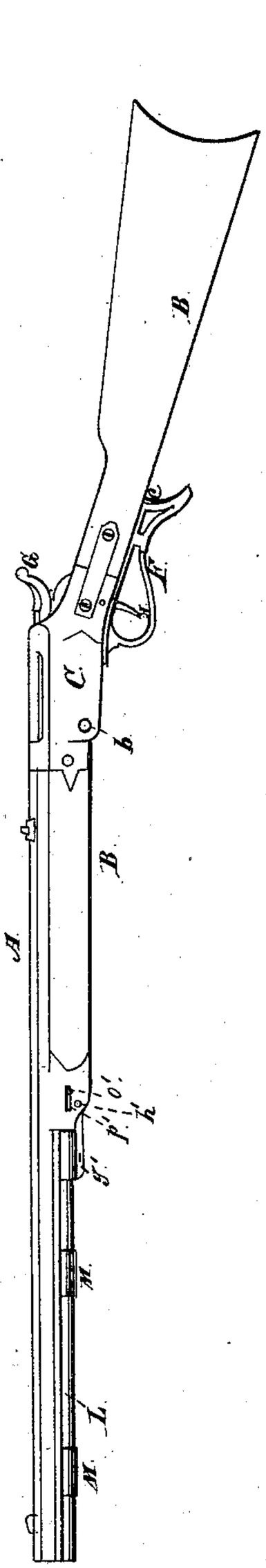

Fig. 1.

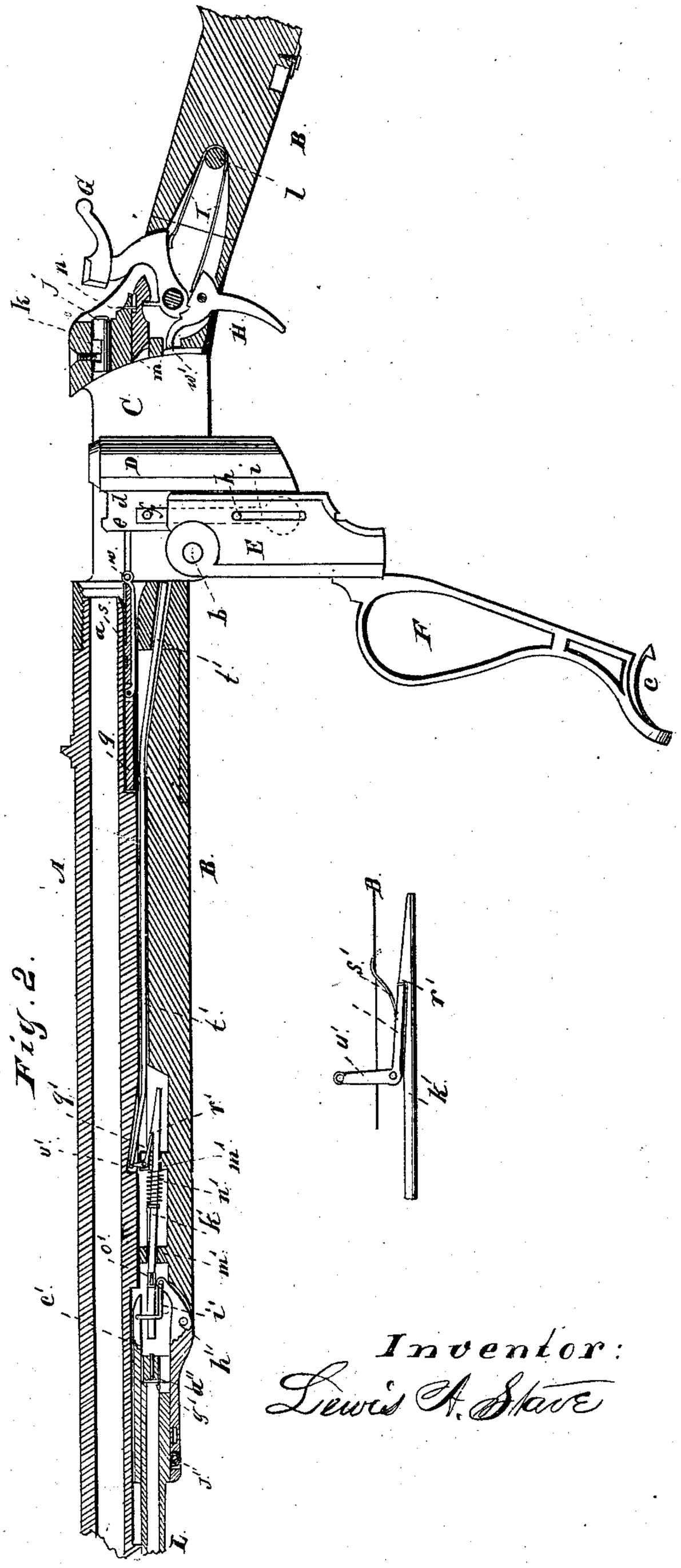

Fig. 2.

Witnesses:

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O. W. Bond.

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Lewis A. Stave

(No Model.) 3 Sheets—Sheet 2.

L. A. STAVE.

Breech Loading Fire Arm.

No. 232,214. **Patented Sept. 14, 1880.**

Fig. 3.

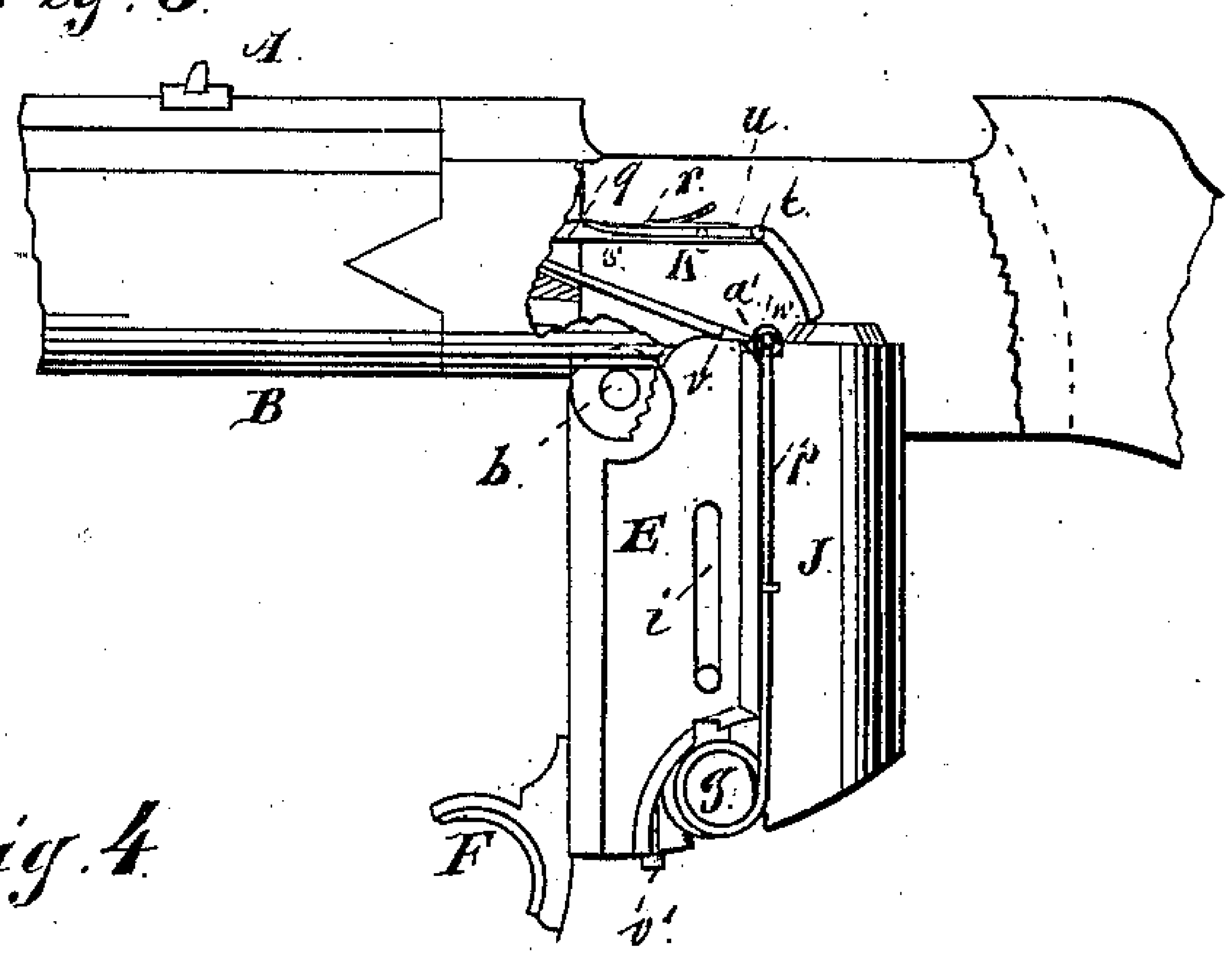


Fig. 5.

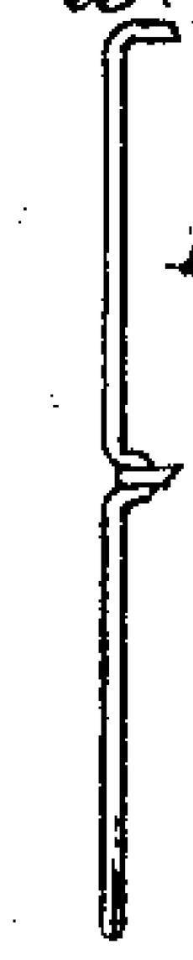


Fig. 4.

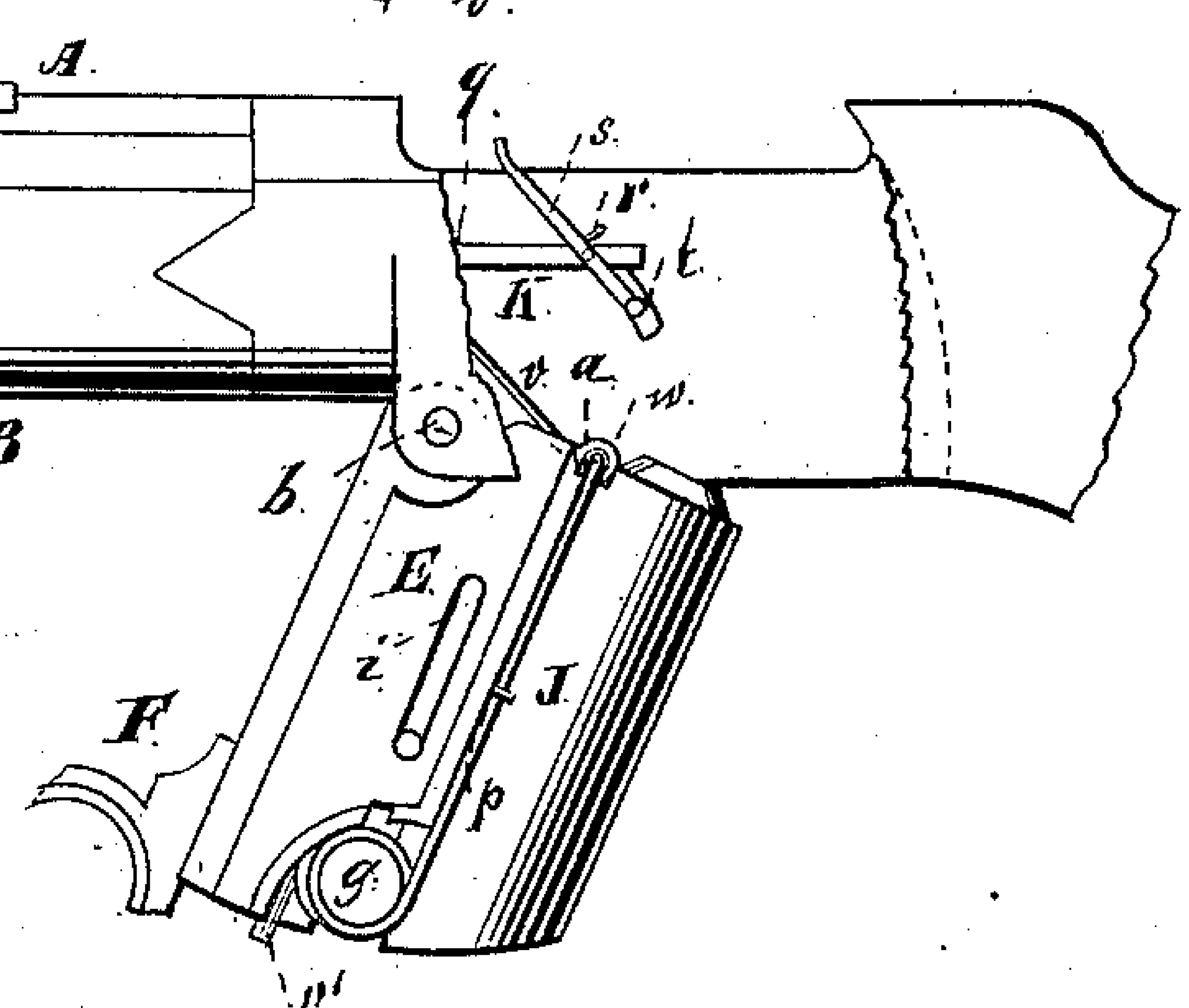


Fig. 6.

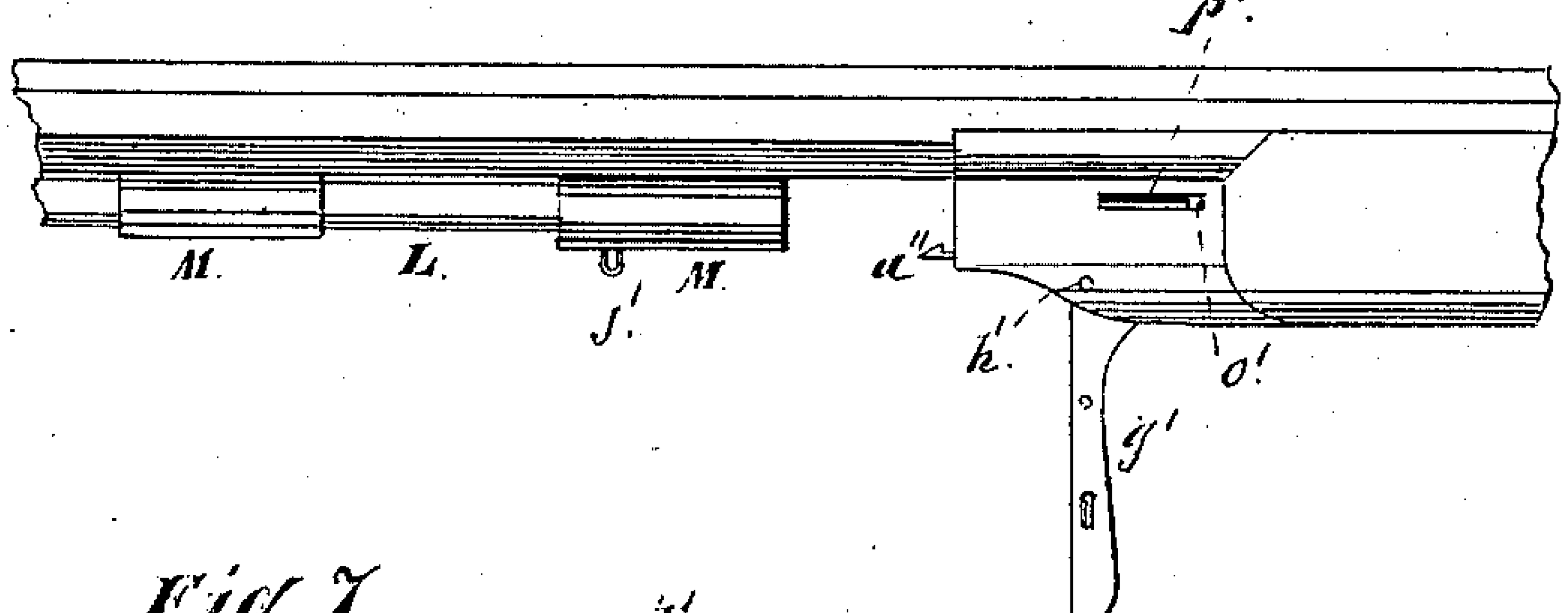
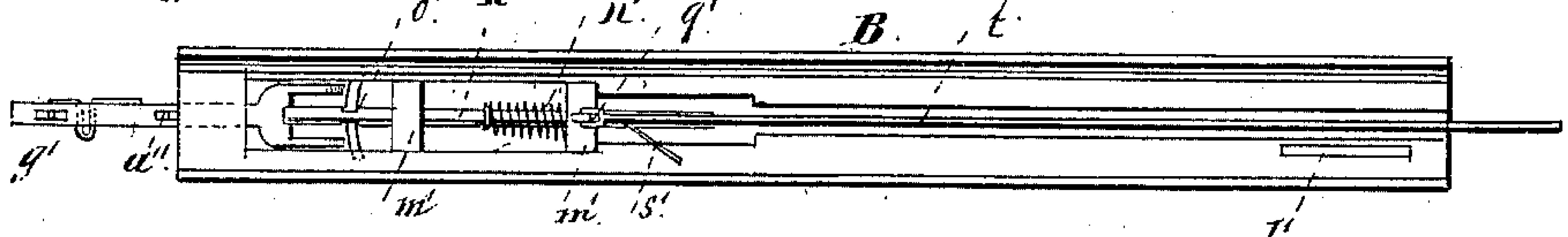


Fig. 7.



Witnesses:

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(No Model.) 3 Sheets--Sheet 3.

L. A. STAVE.

Breech Loading Fire Arm.

No. 232,214. Patented Sept. 14, 1880.

Fig. 8.

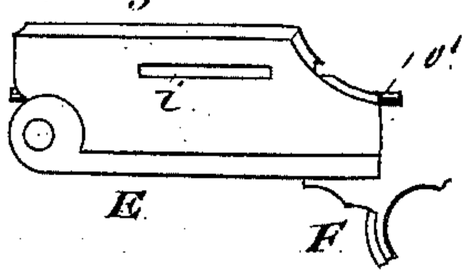


Fig. 9.

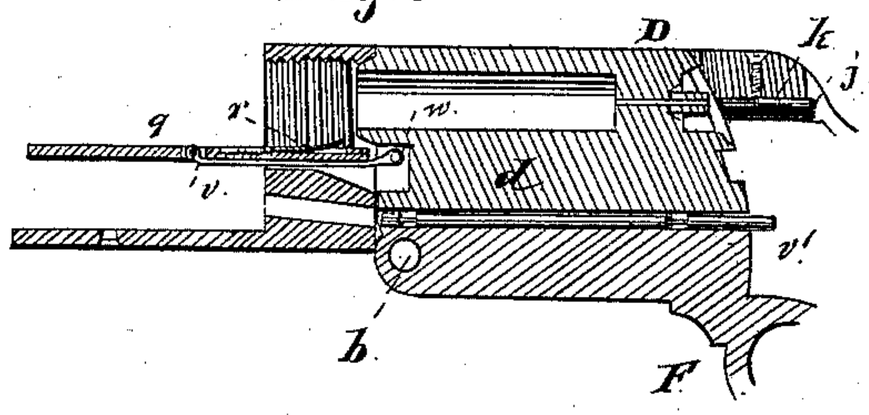


Fig. 11.

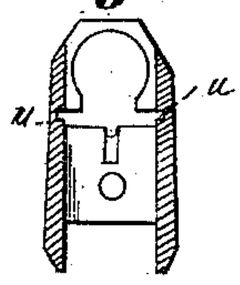


Fig. 10

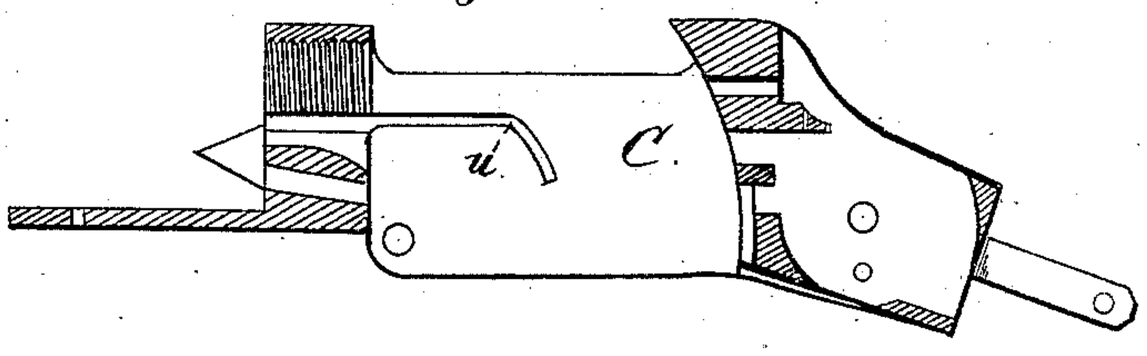


Fig. 12.

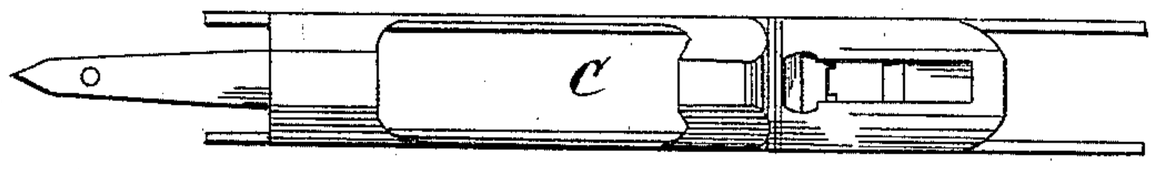


Fig. 13.

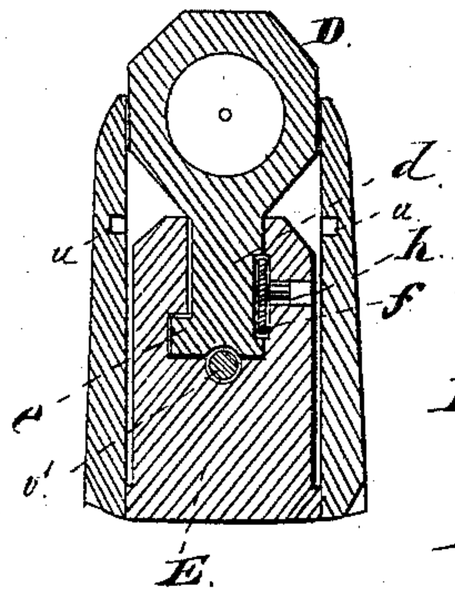


Fig. 18.

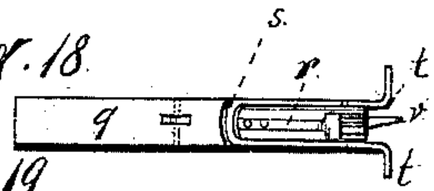


Fig. 19.

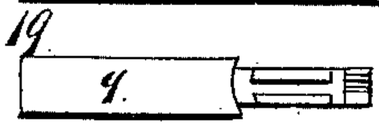


Fig. 20.

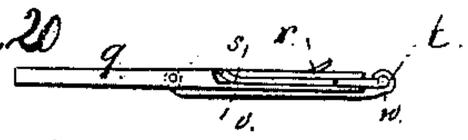


Fig. 14.

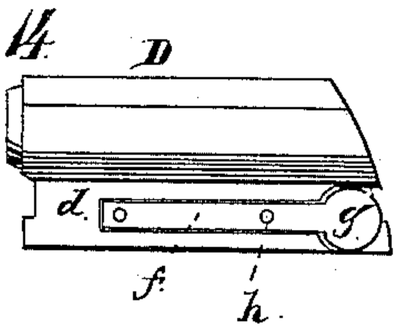


Fig. 15.

Fig. 17.

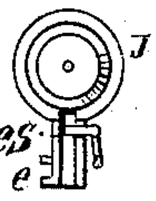
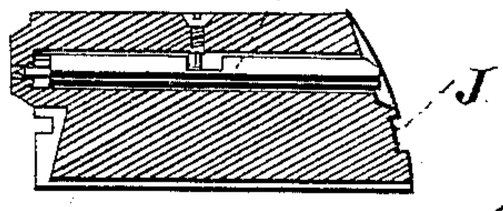


Fig. 16.



Witnesses:
E. A. West
O. W. Bond.

Inventor:
Lewis A. Stave

UNITED STATES PATENT OFFICE.

LEWIS A. STAVE, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND ANDREW B. SPURLING, OF SAME PLACE.

BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 232,214, dated September 14, 1880.

Application filed April 3, 1880. (No model.)

To all whom it may concern:

Be it known that I, LEWIS A. STAVE, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Breech-Loading Guns, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side view. Fig. 2 is mainly a longitudinal central section. It also shows the holder E and guard open and the loose-ammunition chamber pushed up in the holder in the best position for loading. Fig. 3 is a fractional side view, showing the holder E open, with the cartridge breech-block J therein and the cartridge-extractor drawn out ready for loading. Fig. 4 shows the same parts in the position which they occupy when the shell is thrown out. Fig. 5 is a detail. Fig. 6 is a side view, showing the secondary barrel in position for loading. Fig. 7 is a top view of the forward portion of the stock and the parts therein used in connection with the secondary barrel. The remaining figures, from 8 to 20, inclusive, are details.

The leading objects of my invention are to construct a breech-loading rifle adapted to the use of both loose and fixed ammunition, and to provide devices for firing a small barrel or attachment to be used with the rifle, if desired, for small game at short range, a single trigger being used for firing the main barrel and the attachment.

The invention also relates to a number of other features which can be used in connection with those above mentioned, as will hereinafter fully appear.

In the drawings, A represents a breech-loading rifle-barrel. B is the stock. C is a metal frame. It is provided with tangs, by means of which and screws it is secured to the stock. The lower end, *a*, of this barrel may be screwed into the frame C.

D is a chamber for loose ammunition. E is a holder, in which this loose-ammunition chamber is held. It is pivoted to the frame C at *b* upon a suitable pin.

F is the guard, which is permanently secured to the holder E. *c* is a spring-catch on the guard F, which engages with a suitable device to hold the holder E and guard F in a closed position, as shown in Fig. 1.

The chamber D has a flange or extension, *d*, on the under side, and this flange *d* has a small flange, *e*, on one side. *f* is a flat spring secured at one end to the flange *d*, and provided with a thumb-piece, *g*, at the other end. *h* is a pin upon the spring *f*.

The holder E is recessed and grooved, so as to be adapted to receive the chamber D, and in one wall is a slot, *i*, to receive the pin *h*.

The chamber D can be removed from the holder E when it is open, as shown in Fig. 2, by pressing down the spring *f* and drawing the chamber out at the lower end of the holder E. It can also be easily replaced by inserting it at the lower end of the holder. When the chamber is in the holder such chamber can be moved up a little, as shown in Fig. 2, for convenience in loading.

The upper end of D, as seen in Fig. 2, is beveled and provided with a shoulder, and is adapted to fit accurately in the lower end of the barrel, which is properly formed to receive the end of such chamber. The other end of D has a nipple to receive a cap.

j is a firing-pin in the rear end of the frame C. It has a slot or recess, *k*, which permits sufficient movement of the pin, and it is prevented from escaping from its place by a screw, the point of which is flattened and enters the slot in the pin.

G is the hammer, and H is the trigger, both of which are pivoted in the frame.

I is the mainspring located in the stock, and held in place by a single screw, *l*. One end of this spring acts upon the hammer and the other end acts upon the trigger. (See Fig. 2.)

m is a sliding bolt located in a suitable passage in the frame, in which it is held by a pin, *n*, the end of which enters a slot in the bolt, which allows the same to move a little forward and back. There is a notch in the under side of this bolt, into which a projection on the hammer enters. These parts are so formed and arranged that when the hammer is drawn back it draws the bolt back, and when the hammer is thrown down it pushes

the bolt forward a little, and then the forward end of the bolt enters a little recess in the rear end of flange *d* on the chamber D.

The hammer may have two notches to engage with a shoulder on the trigger.

J is a cartridge breech-block, to be used in place of the chamber D when fixed ammunition is used. It is formed substantially like the chamber D, except that it has no chamber for ammunition, and is provided with a firing-pin, *o*, which passes through it in line with the pin *j*. This pin *o* also has a limited movement forward and back, and is prevented from escaping by a slot and screw.

p is a piece of wire having a little bend near the center, and it is hinged or connected to one side of the block J by a staple, or in other suitable manner. The outer end passes over the thumb-piece on the spring *f* on the flange of the block, and the other end is bent over the end of this flange, forming a hook, *a'*, to enter an eye in or upon the cartridge-extractor, or in the end of a small rod or wire hinged to such extractor.

K is the cartridge-extractor. It consists of a sliding piece, *q*, a spring, *r*, upon the upper side and near the rear end of the slide, the spring being turned up to catch the flange of the cartridge, and a bail, *s*, pivoted to the slide near the rear end. The ends *t t* of the bail enter and move in grooves *u w* upon the inside of the frame C. The main part of these grooves is straight, but the rear end of each groove curves downward.

v is a small rod, one end of which is pivoted or hinged to the slide *q*. The other end has an eye, *w*, into which the hook *a'* on the end of the wire or rod *p* passes. There is a groove in the end of the flange *d*, into which *v* passes when the holder E is open.

A suitable passage is provided in the frame C for the slide, and the under side of the rear end of the barrel is flattened or cut away a little to accommodate this slide.

The parts D and J are both held in the holder E by the pin on the flat spring, which pin comes in contact with the end of the slot. As the breech-block J does not need to be moved in use, it can be prevented from sliding in the holder E by means of a stop. The frame is suitably chambered to receive the parts D E. D has a chamber for ammunition.

L is a small barrel, which can be used, or the gun can be made without it and without the parts connected with its use. This barrel L slides in the thimbles M.

c' is a plate or bar secured to the barrel L and sliding in a groove or recess upon the under side of the main barrel A.

g' is a lever fulcrumed at *h'* upon a pin. One end of this lever is pivoted, by means of a suitable link, *i'*, or otherwise, to the end of the bar *c'*, and the other end has a locking device to engage with the barrel L. As shown, this device consists of a staple, *j'*, on the barrel, which passes into a slot in the end of the lever, which is provided with a spring-catch to engage with the staple *j'*.

k' is a firing-pin which slides in bearings *m'* in the stock. *n'* is a spring which throws the firing-pin. *o'* is a cross-piece secured to this pin, the ends of which piece or bar project through slots *p'* in the stock.

q' is a pawl pivoted within the stock and arranged to engage with a notch, *r'*, near the rear end of the firing-pin *k'*, with which it is held in contact by a light spring, *s'*.

t' is a rod pivoted to an arm, *u'*, upon the rear end of the pawl *q'*. This rod lies in a groove in the inside of the stock. Its rear end is curved downward a little, and passes through a hole in the forward end of the frame C.

v' is a sliding rod located in a groove within the holder E. It is so arranged that its forward end is in line with the rear end of the rod *t'*. As shown, this rod *v'* is held in place by means of two staples, which pass over parts of the rod which are smaller than the main portion.

w' is a projection upon the trigger, which can come in contact with the rear end of the sliding rod *v'*.

a'' is an extractor consisting of a spring-hook arranged to engage with the flange on a cartridge for the purpose of drawing the shell of the cartridge from the barrel L. This extractor is properly secured to the forward end of the stock-tip. This end of the stock-tip is also formed so as to serve as a breech-block for the cartridges used in the barrel L.

The operation when loose ammunition is used is as follows: The chamber D being in the holder E, and the parts in the position shown in Fig. 1, the hammer is to be placed at half-cock, which will withdraw the bolt *m* from engagement with the end of the chamber D; then by pressing on the spring-catch *c* it can be released; then the guard and the holder E can be turned down into the position shown in Fig. 2; then the ammunition-chamber D can be pushed upward in the holder E, bringing such chamber into the position shown in Fig. 2, for convenience in loading; then powder is to be placed in the chamber D, and the ball is also placed therein. If the ball be of proper size no patch will be required. A cap is then to be placed on the nipple. The holder with the chamber D and the guard are then to be brought back to the position shown in Fig. 1, when the gun will be ready for firing; but before restoring the parts to this position the chamber D must be brought down in the holder E until the pin *h* comes in contact with the lower end of the slot *i*. Of course, before firing the hammer must be at full-cock, as usual. Then upon pulling the trigger the hammer will be released, and will strike the firing-pin *j* and drive it against the cap. At the same time the bolt *m* will be forced forward by the hammer, and it will engage with the notch in the rear end of the flange *d* on the chamber D, which will prevent all possibility

of accidental displacement of the guard F and parts connected therewith.

The gun can be again loaded in the manner above described.

The rifle can be adapted to the use of fixed ammunition by removing the chamber D, which can be done by pressing down the spring *f* and drawing out the chamber D and inserting the breech-block J in the holder E, at the same time connecting the hook *a'* upon the wire *p* with the eye *w* at the free end of the rod *v*. Then the holder E with the block J can be turned down, as shown in Fig. 3. In turning down these parts the extractor K will be drawn out, as shown in Fig. 3. A cartridge can then be placed upon the sliding piece *q*, and so that the free end of the spring *r* will engage with the flange of the cartridge. Then the holder E and block J are to be brought up and locked in the frame C, in doing which the cartridge will be forced into place in the barrel, and the parts will, in fact, be in the position shown in Fig. 1, as the external form of the block J and the chamber D are the same.

When the gun is fired the hammer will strike against the pin *j*, as before, and by the action of this pin *j* the firing-pin *o* will be forcibly driven against the end of the cartridge. When the holder E and block J are again turned down and carried a little beyond a perpendicular, the shell will be drawn out from the barrel by the extractor, and the ends *t t* of the bail passing down in the curved slots *u*, the bail will be forcibly raised and the shell will be thrown out. (See Fig. 4.)

The attachment for small game is used and operated as follows: By releasing the long arm of the lever *g'* and bringing it into the position shown in Fig. 6, the barrel L will be carried forward a little by the action of the short arm of the lever upon the bar *c'*; but before doing this the firing-pin *k'* should be forced back and made to engage with the pawl *q'*, which can be done by pulling back the cross-piece *o'*. Then a small cartridge can be inserted into the rear end of the small barrel L, and the lever and barrel being brought back to the position shown in Fig. 1, the barrel L will be ready for firing, which can be done by pulling on the trigger H, which will bring the point *w'* in contact with the rear end of the sliding rod *v'*, forcing its forward end against the rear end of the rod *t'* and pushing it forward a little, which will release the pawl *q'* from the notch in the firing-pin *k'*, which pin will then, by the action of the spring *n'*, be forcibly thrown forward against the cartridge in the barrel L. When ready for firing the hook on the extractor *a''* will be engaged with the flange on the cartridge, and when the barrel is again carried forward, as before described, the shell will be withdrawn from the barrel L.

The loose ammunition-holder and the cartridge breech-block can be interchanged, one for the other, in less than five seconds of time.

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

1. In a breech-loading fire-arm, the combination of the pivoted holder E, constructed substantially as described, to receive and support the interchangeable loose-ammunition chamber, and the breech-block having a firing-pin, with a secondary firing-pin in the breech-frame, and a hammer arranged to strike the same, for firing a cap on the ammunition-chamber or operating the firing-pin of the breech-block, all essentially as set forth.

2. The combination, with the pivoted holder E, of the removable and replaceable loose-ammunition chamber D, having a nipple for a cap, and a hammer arranged to strike a firing-pin to explode the cap, substantially as and for the purpose described.

3. The longitudinally grooved and recessed pivoted holder E, for receiving and supporting the interchangeable chamber D or breech-block J, having the flanges *d* and *e*, adapted to said grooved and recessed holder, substantially as described.

4. The combination, with the longitudinally-grooved pivoted holder E, of the loose-ammunition chamber D, having a flange, *d*, provided with the flat spring *f*, for confining said chamber in the holder, substantially as described.

5. The longitudinally-grooved pivoted holder E, provided with the laterally-extending slot *i* in one of its walls, and constructed to receive and support the chamber D, having the flange *d*, flat spring *f*, and pin *h*, adapted to the slot *i*, substantially as shown and described.

6. The combination, with the swinging breech-block J and the frame C, having the straight and inclined grooves *u w*, of the sliding piece *q*, connected with the breech-block, and the bail *s*, pivoted to the slide *q*, and having its ends in rear of the pivot engaged with the slots *u w*, for forcibly tilting said bail when the slide *q* is moved rearwardly by the breech-block, substantially as described and shown.

7. In a breech-loading fire-arm, the combination, with the breech-block J and frame C, having the angular grooves *u w*, of the sliding piece *q*, the spring *r*, for engaging the flange of the cartridge, the bail *s*, pivoted to the slide, and having bent ends *t*, adapted to the grooves in the frame C, substantially as described, whereby when the breech-block is dropped the bail is turned on its pivot and forcibly raised to expel the shell, as set forth.

8. In a breech-loading fire-arm, the combination, with a cartridge breech-block, J, and the frame C, having grooves *u w*, of the sliding piece *q*, provided with the spring *r*, the pivoted bail *s*, having bent ends *t*, adapted to the grooves in the frame C, and a wire, *p*, on

the breech-block, for connecting the latter with the rod attached to the sliding piece, substantially as described.

9. The combination, with the longitudinally-sliding secondary barrel and the firing mechanism of the main barrel, of the spring-actuated firing-pin *k'*, having the rear notch, *r'*, pawl *q'*, having arm *u'*, longitudinal rod *t'*, attached to the latter and having its rear end arranged to be operated by a pin, *v'*, which is actuated by the projection *w'* on the trigger H, all substantially as described.

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Witnesses:
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O. W. BOND.