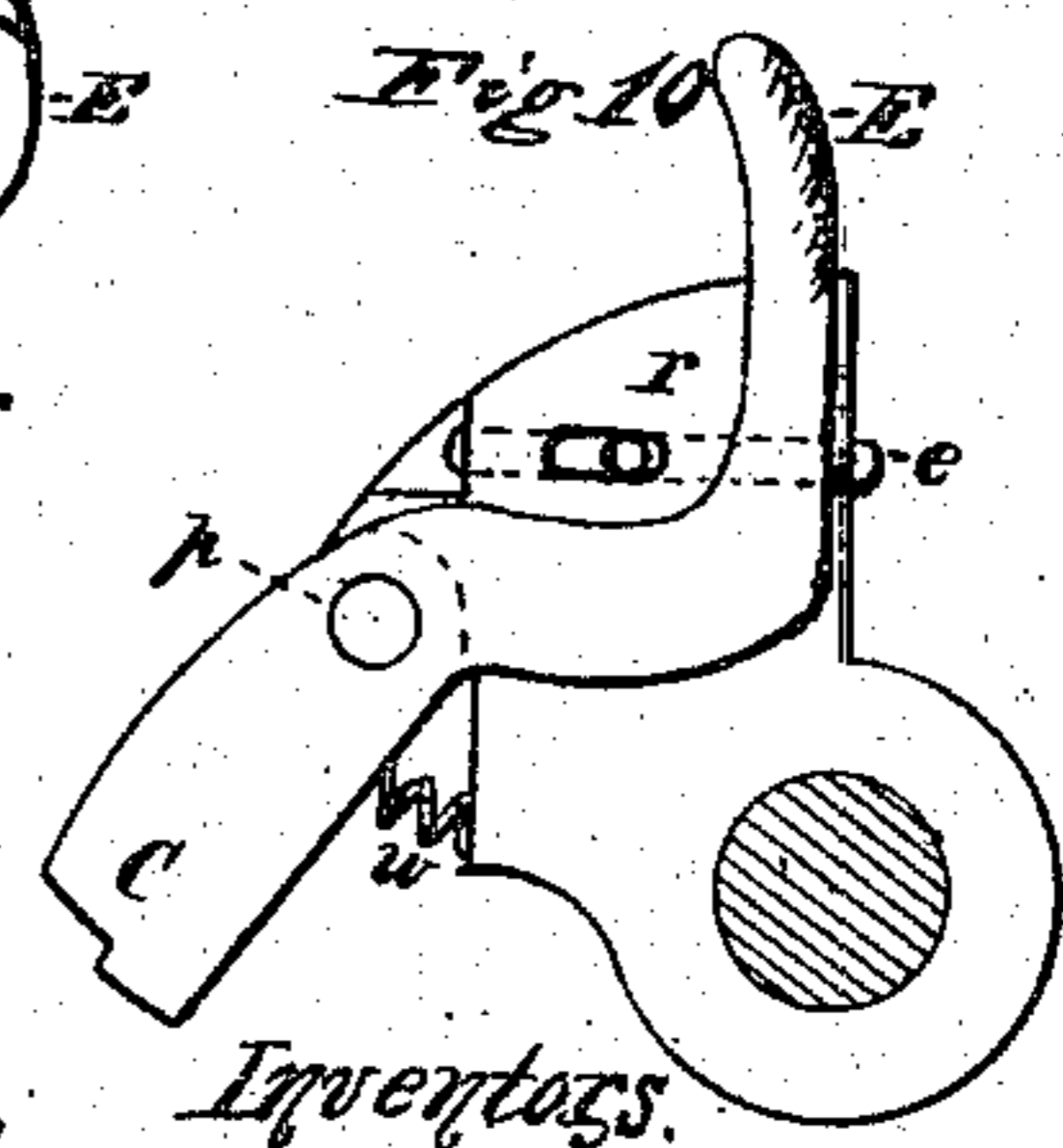
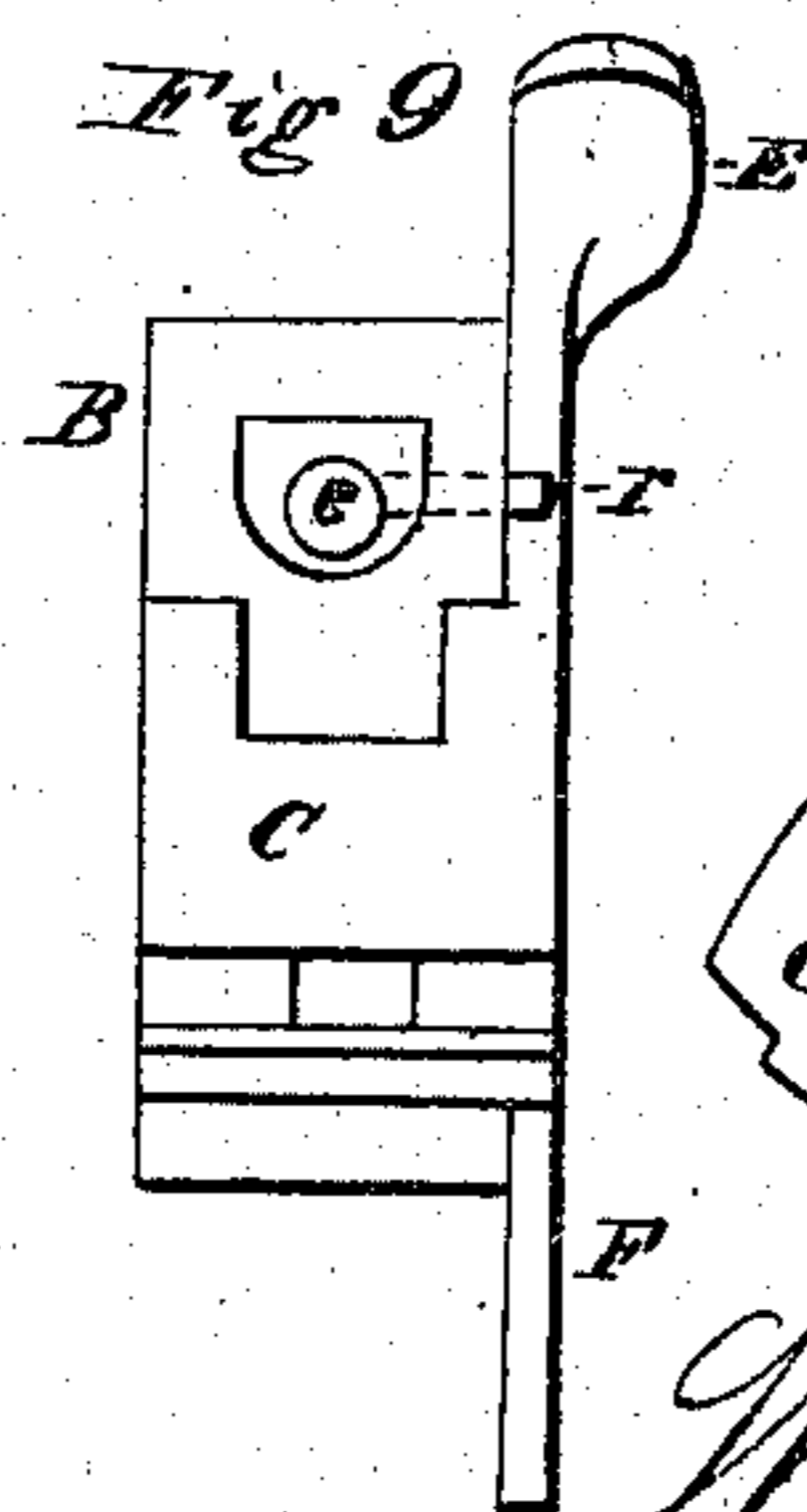
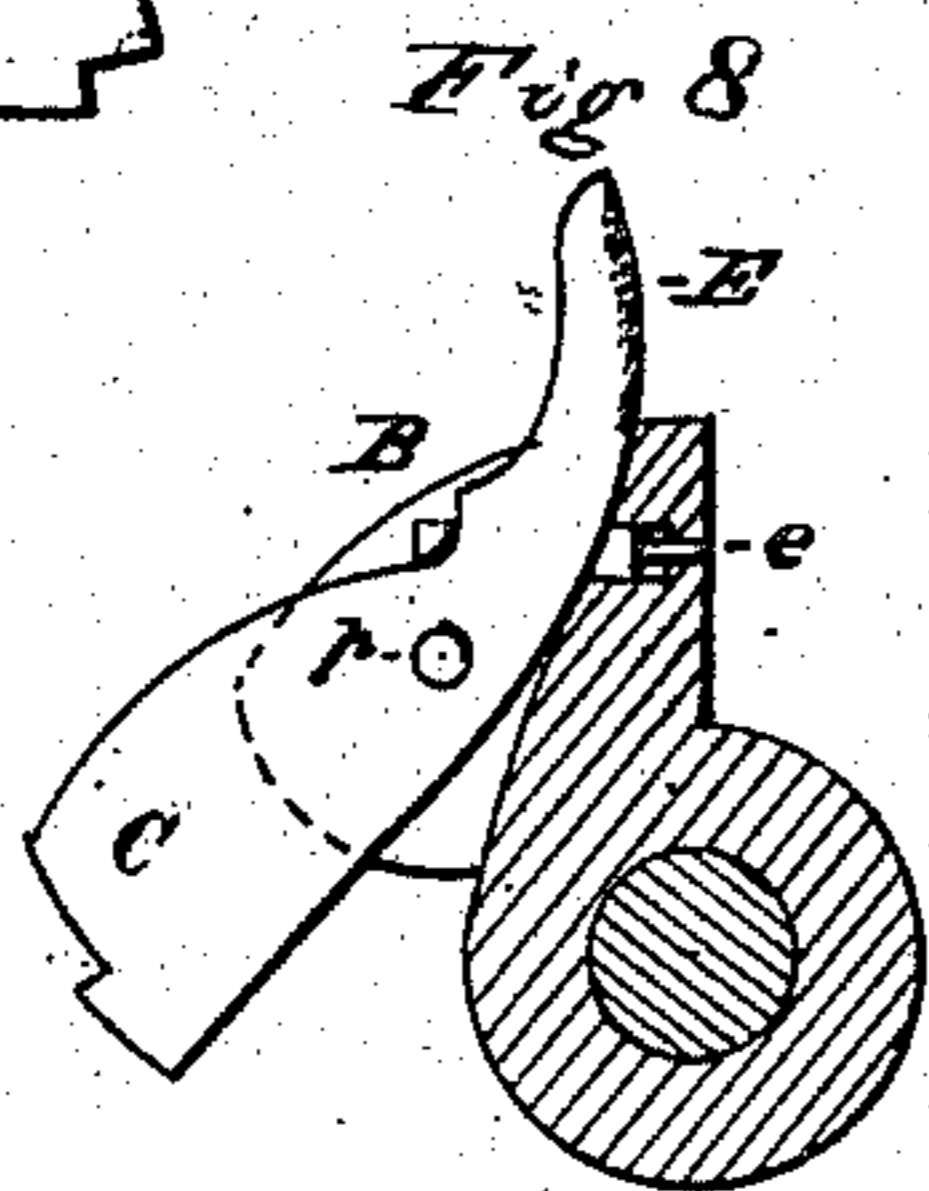
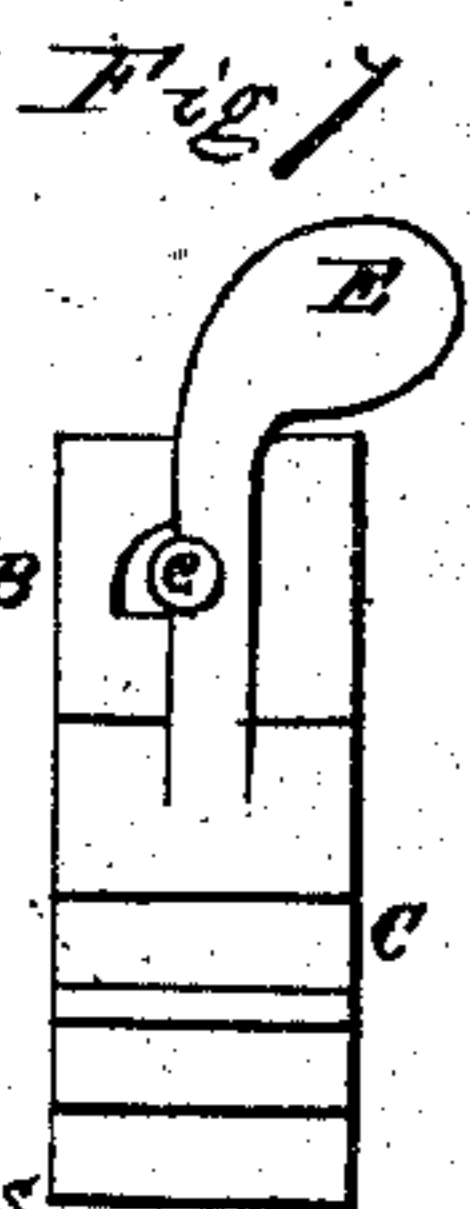
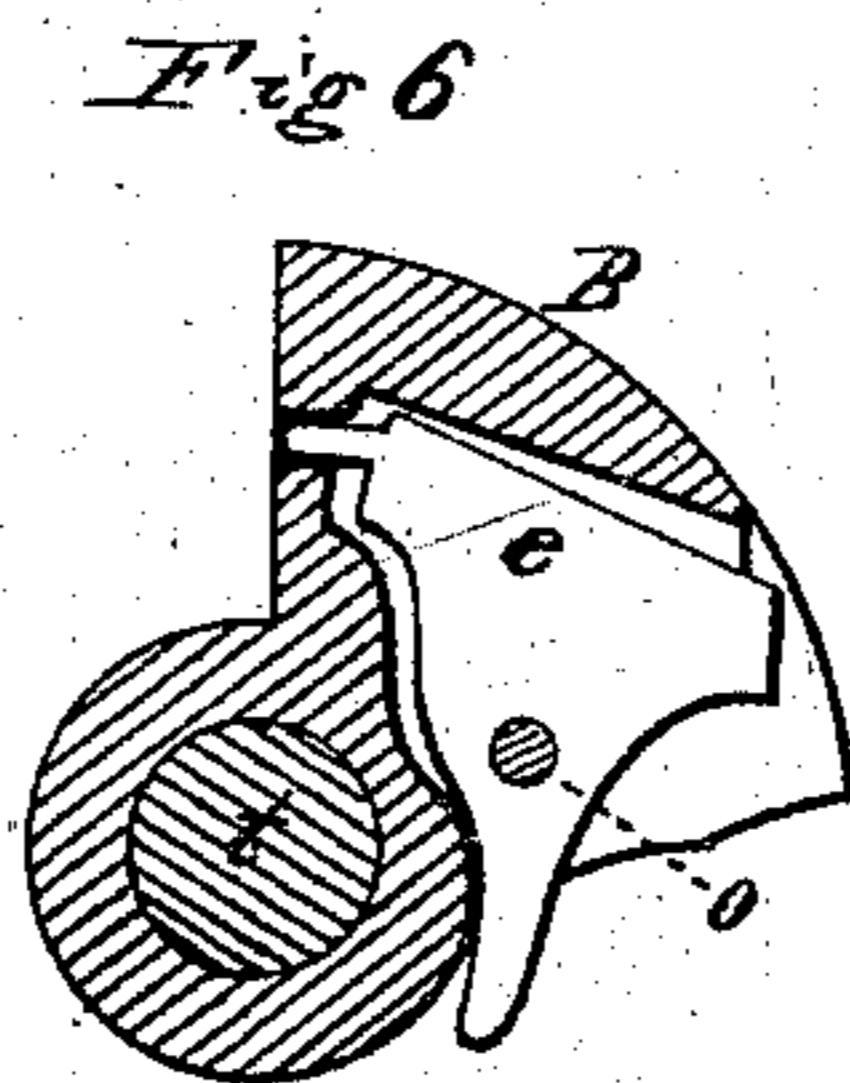
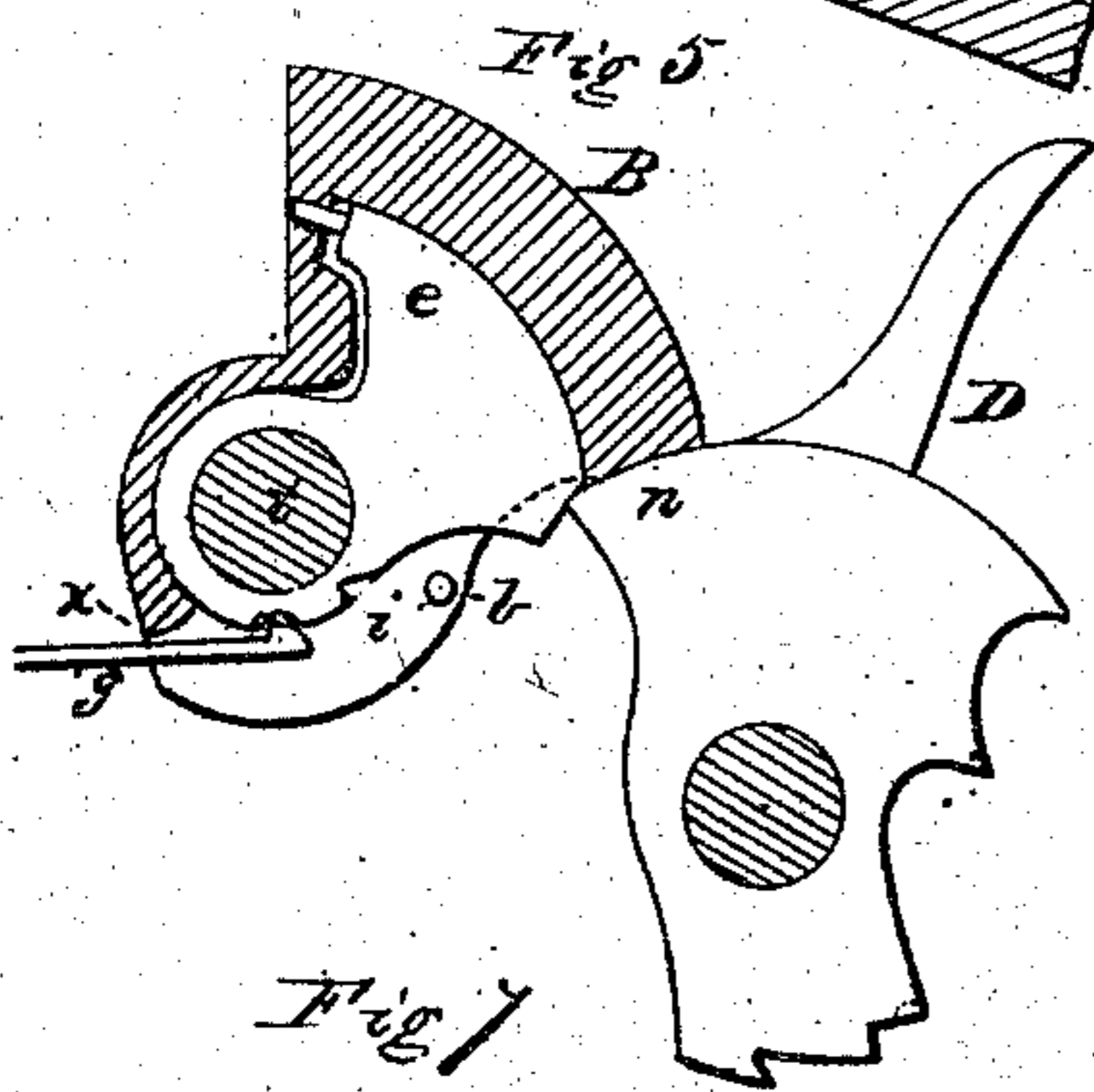
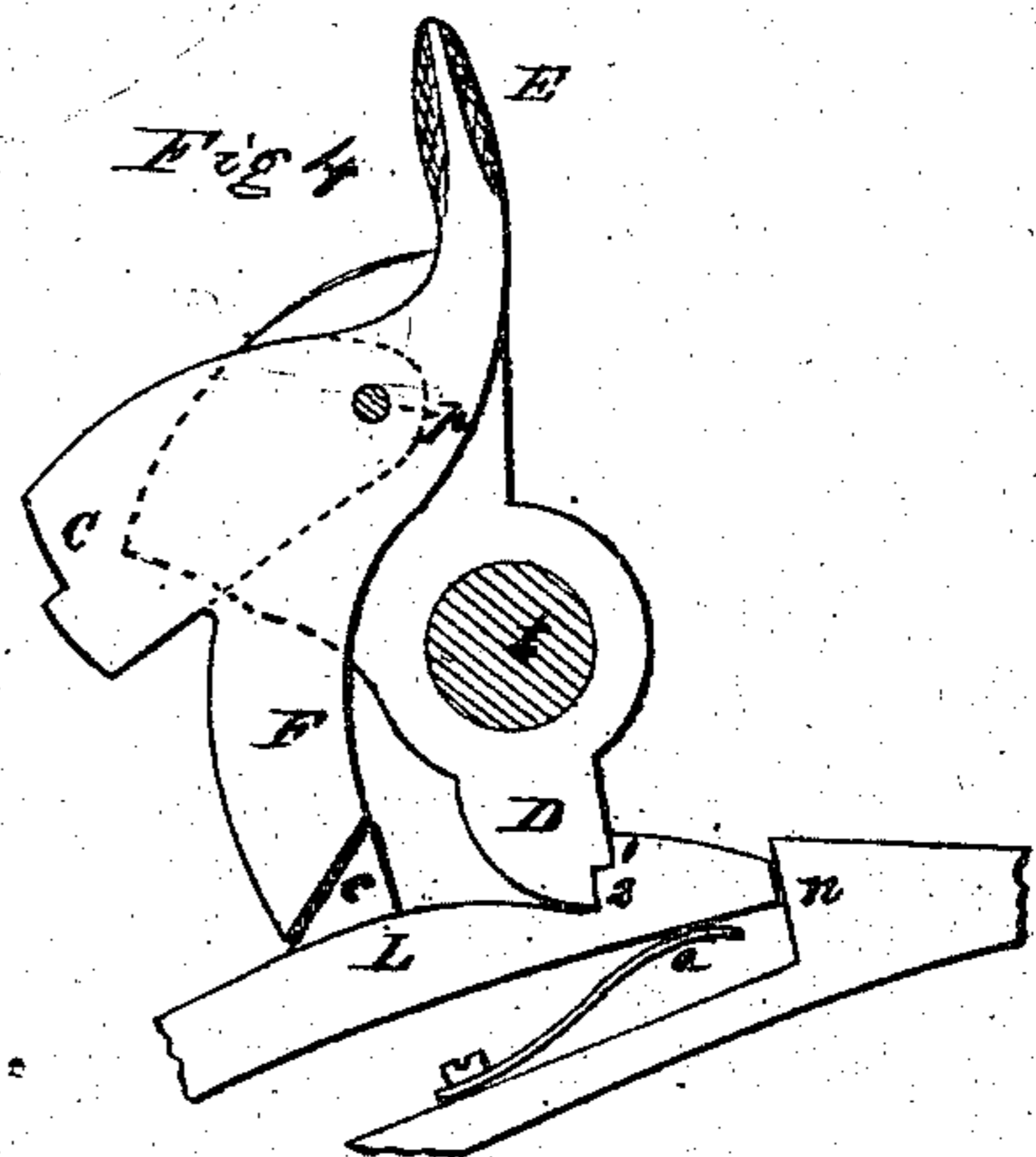
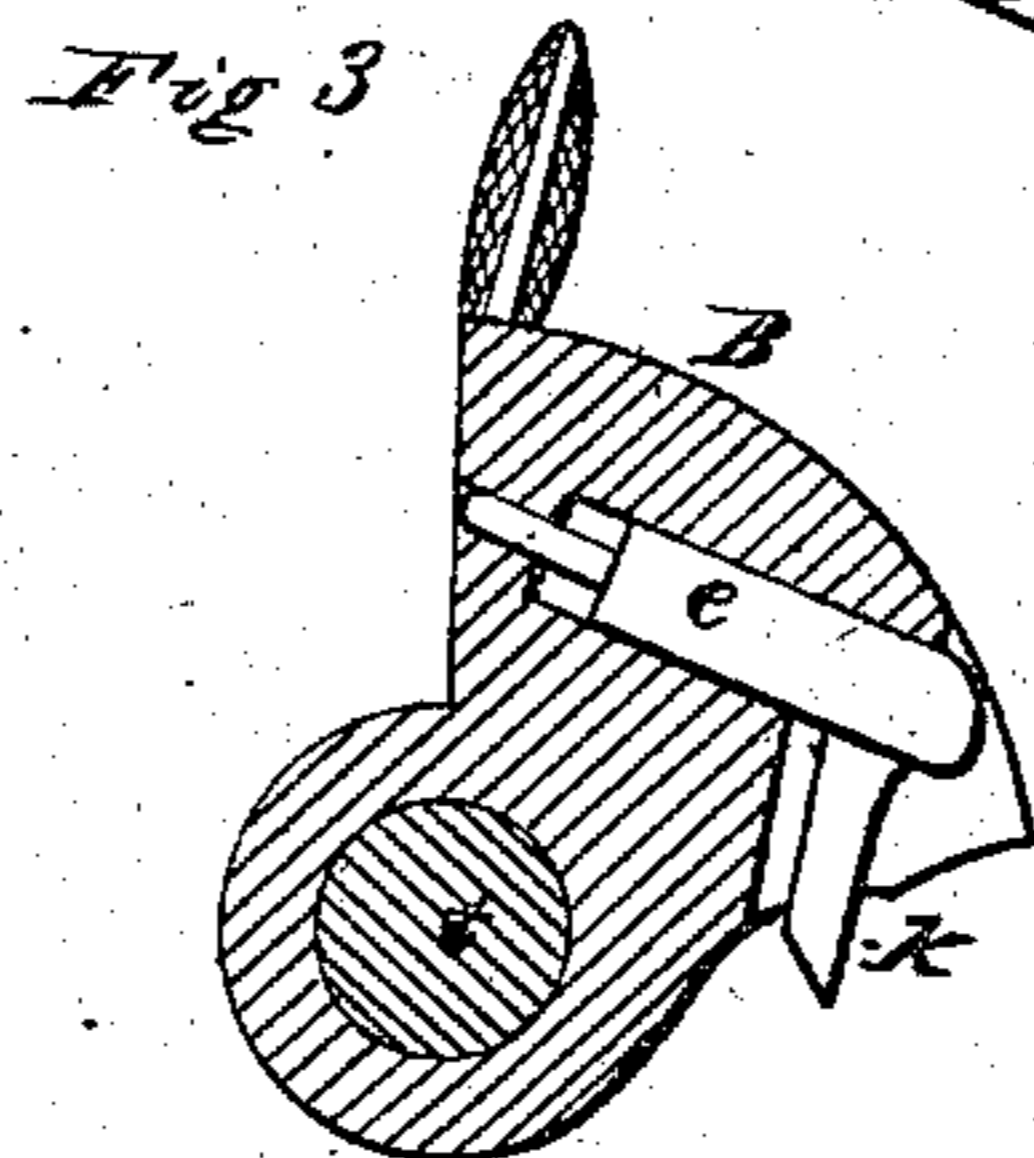
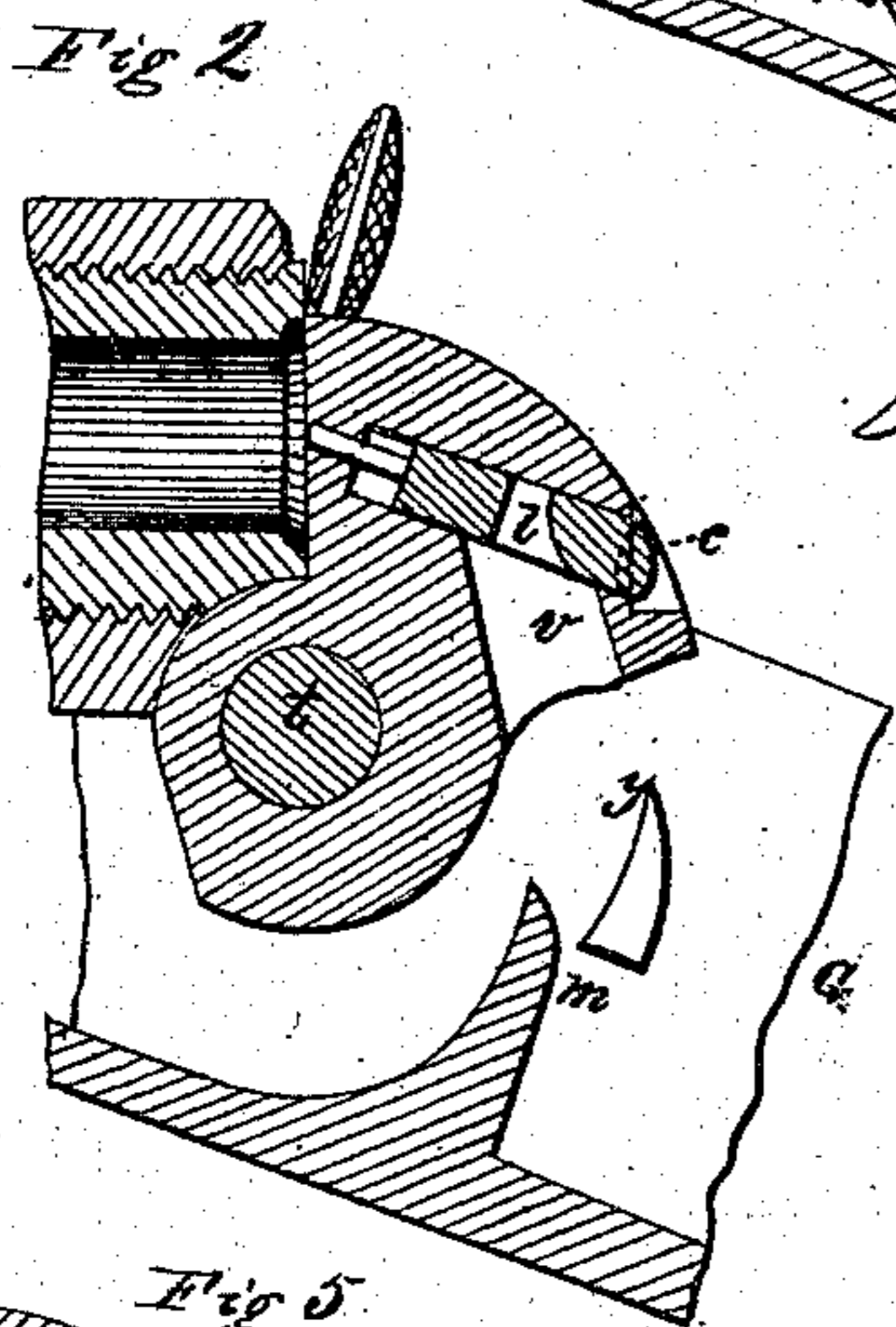
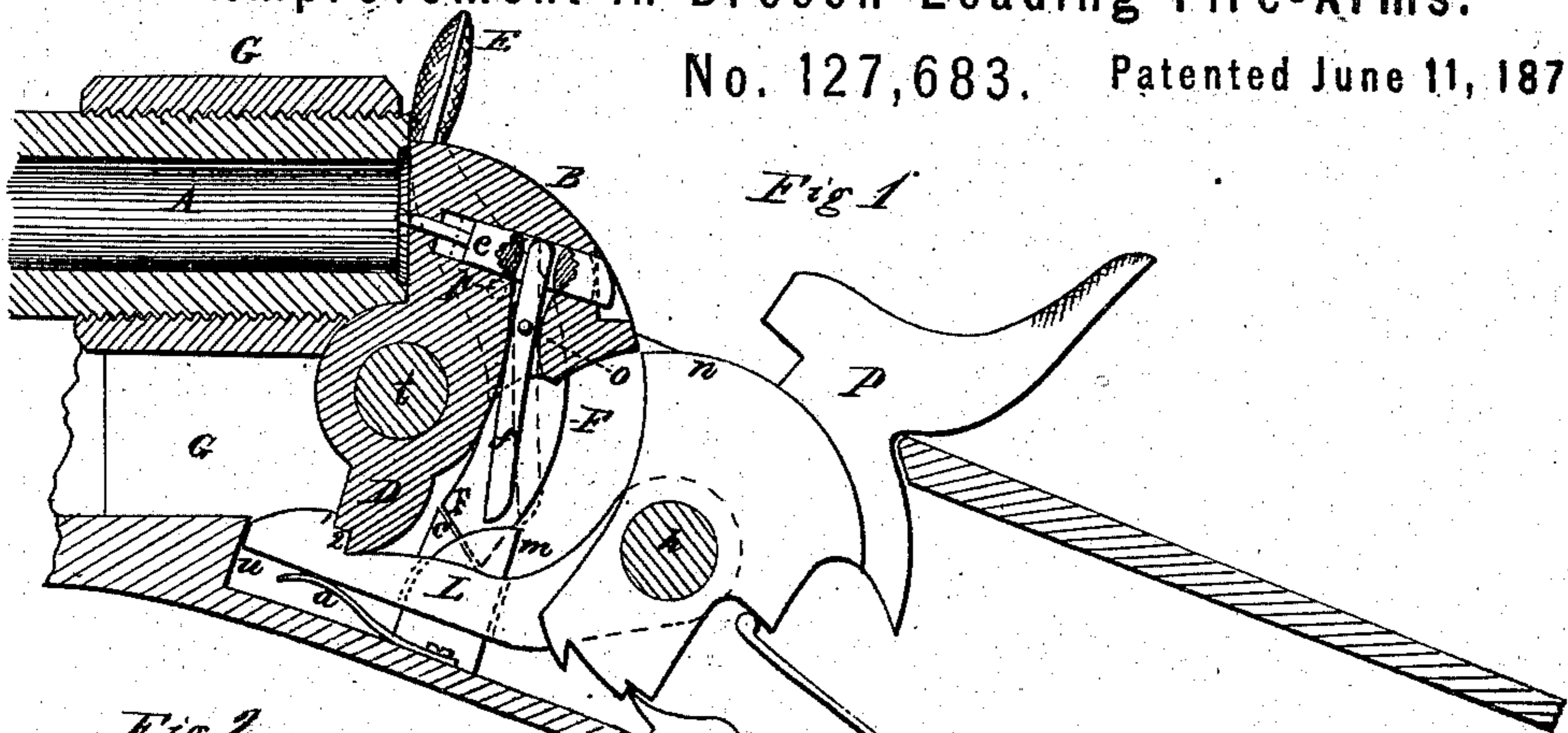


W. C. & P. T. DODGE.

Improvement in Breech-Loading Fire-Arms.

No. 127,683. Patented June 11, 1872.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 127,683, dated June 11, 1872.

### SPECIFICATION.

*To all whom it may concern:*

Be it known that we, WILLIAM C. and PHILIP T. DODGE, of Washington City, in the county of Washington, District of Columbia, have invented certain Improvements in Breech-Loading Guns, of which the following is a specification, reference being had to the accompanying drawing.

Our invention relates to breech-loading guns; and the invention consists in constructing and arranging the parts so as to force the firing-pin back by a positive movement; in opening the breech; in a method of locking the breech closed by the act of swinging it shut and before the gun is fired; and in a novel method of constructing and arranging the locking-shoulder and firing-pin, so as to dispense with the projecting nose of the hammer, all as hereinafter more fully described.

Figure 1 is a longitudinal section of the breech part of a gun embodying our improvements. Figs. 2, 3, 4, 5, 6, 7, 8, 9, and 10 are views of portions, showing various modifications.

Our improvements are intended more especially for that style of breech-loading arm which has its breech-block pivoted at the rear of the barrel, and which is opened by swinging the breech-block backward and downward, which style of arm, being well known, need not be further described. In this class of guns there is always more or less danger of prematurely exploding the cartridge by the closing of the breech-block; and this danger is increased by the liability of the firing-pin to become jammed or stuck fast in its seat, with its front end protruding. It is to obviate or overcome this difficulty or danger that our first improvement is intended; and to accomplish this very desirable object we arrange the firing-pin in such a manner that it shall be drawn back by a positive movement in the act of opening the breech. This may be done in a variety of ways, as illustrated in the drawing.

In Fig. 1 the firing-pin *e* is shown connected to the upper end of a vertical lever, *f*, which is pivoted at *o* in a recess made for it in the breech-block *B*, the lower end of the lever *f* protruding below the rear face of the block *B*, and arranged to strike upon an incline or stud, *m*, which projects upward from the bot-

tom of the frame *G*, as represented in Fig. 1, the lever *f* and the incline *m* being so arranged in relation to each other that, as the breech swings open, the lever will strike the incline, and thereby cause its upper end to draw back the firing-pin.

In Fig. 2 it is shown with the lever *f* omitted, the stud *m* being represented as projecting higher up, with its opposite face inclined, so that, as the breech-block *B* is swung back, the stud *m* will enter a recess, *v*, and also a hole, *l*, in the firing-pin *e*, and thus force it back. Instead of the hole *l* there may be a shoulder on the firing-pin for the stud *m* to strike against, the operation and result being the same.

In Fig. 3 the firing-pin *e* is shown with a rigid arm, *k*, having its lower front face beveled to work on a suitable stud, and thus force back the pin.

Fig. 6 represents the firing-pin *e* pivoted at *o*, with its lower part extending down in the form of an arm to hit the stud, and thus force back its point—this operating on the same principle as that shown in Fig. 1, except that in this case the firing-pin and lever are all in one piece, and swing instead of slide.

In Fig. 5 is shown a similar style of swinging firing-pin, but so modified in form as to permit it to be pivoted on the same bolt *t* as the breech-block. In this case a spring arm, *g*, having a hook on its end, is arranged to engage in a notch, *i*, cut in the rear under edge of the firing-pin or plate *e* when the latter, with the breech-block, is turned back. This hook, engaging with the notch *i*, will hold the pin or plate *e* securely until the breech-block, in closing, has moved far enough to cause its shoulder *x* to strike the spring or arm *g*, and thus force its hook out of the notch *i*, when the firing-pin will be free to move with the breech-block as the latter is forced home or closed. A pin, *b*, may be inserted, as represented, to prevent the firing-pin from falling over back beyond a given point. Another notch, beveled or inclined on both sides, may also be formed in the lower edge of the pin or plate *e* at such a point that the hook of arm *g* will rest therein when the breech is closed, as represented in Fig. 5, in order to hold the firing-pin in its proper position to be hit by

the hammer, and also serve to draw it back slightly as soon as relieved from the blow or pressure of the hammer.

All the forms thus far described are designed to be used with that style of gun in which the breech-block is made of a single piece, and is locked fast by a shoulder swinging in behind it, as represented in Figs. 1 and 2.

In the patent issued to us March 14, 1871, we have shown and described a gun in which the breech-block is made in two parts, one of which serves to lock the other fast. This form of breech-block is shown in Figs. 7, 8, and 10, and, with certain modifications to be hereinafter explained, in Figs. 4 and 9 also. In this style of gun the firing-pin may be arranged to be moved by the swinging or locking part C of the breech-block.

In Figs. 7 and 8 the arm or thumb-piece that operates the part C is fitted in a recess in the part B alongside of the firing-pin *e*, to which it is connected by a shoulder or slot and pin, or in any other suitable manner; so that, as the thumb-piece E is drawn back to unlock the breech, it will also draw back the firing-pin, the firing-pin being left free to move when hit by the hammer, by the thumb-piece moving forward out of its way as the breech is locked again.

In Figs. 9 and 10 the firing-pin *e* is shown with an arm, *r*, projecting laterally, so as to be hit by the arm or thumb-piece of the part C, the operation being precisely the same, and drawing back the firing-pin by a positive movement in opening the breech of the gun. Instead of having the firing-pin operated by the arm of part C, as described, it may be made with a laterally-projecting arm arranged to strike against an incline on, or work in an inclined groove in, the inner face of the frame G, as also shown in Fig. 2, in which *y* represents the incline on the side of the frame G. Any of these various plans may be adopted at the option of the manufacturer, that last described being equally applicable to either style of breech-block. To lock the breech closed, before the hammer descends, we make the breech-block B with a projection or lug, D, on its lower side, as shown in Figs. 1 and 4, the frame G being made deeper than heretofore, so as to permit this lug D to be of considerable length, and thus afford a leverage below the axis *t* equal to that of the breech-block above it, or nearly so. We then provide a latch, L, which may be pivoted on the same bolt with the hammer, as shown in Fig. 1, either by straddling the lower part of the hammer or fitting on one side of it; or it may be pivoted to the frame at any other point where it will not be in the way of the other parts. This latch L is provided with a shoulder on its upper side, arranged to engage with the front face of the lug D, when forced up by the spring *a* as the breech is closed. In order to render it more secure, the front end of the latch may rest against a shoulder, *u*, on the lower part of the frame, as shown in Figs. 2 and 4. By making

the lug D with an offset or shoulder, as there represented, the breech will be locked before it is entirely closed, the same as in our former patent. To release this latch L, so that the breech may be opened, we pivot to the side of the breech-block B a lever, F, the upper end of which terminates in a thumb-piece, E, for operating it and the breech-block, while its lower end extends down below the breech-block and terminates in an incline or beveled face, which, as the lever is operated, strikes against an inclined projection, *c*, on the latch L, thereby depressing the latter and releasing the breech-block. This latch is not intended to receive the strain when the gun is regularly discharged, but simply to operate as a safety-guard, by preventing the breech-block from being blown open by a premature or accidental discharge. This safety arrangement may be used either with the locking-shoulder *n*, shown in Fig. 1, or with the part C described in our patent of March 14, 1871, and as shown in Figs. 4 and 9 of this application, in which the lever F and the locking-part C are represented as all in one piece. It is, however, more especially designed for use with the former, as in the latter it is not necessary, the part C performing the same function, as well as receiving the force of the explosion when the gun is fired.

In Fig. 5 is shown our improvement by which we dispense with the ordinary nose of the hammer. Ordinarily the hammer is made as represented in Fig. 1; but when so made the firing-pin *e* has to be inclined, or the nose of the hammer will be so high when cocked as to be in the way of the introduction of the cartridge into the chamber of the gun. By making the firing-pin as shown in Fig. 5 it will be hit by the front edge of the shoulder *n* as the latter swings in behind the breech-block, and thus the blow is struck by the locking-shoulder *n*, instead of by the nose of the hammer, the latter being thereby dispensed with entirely.

It is obvious that the firing-pin, instead of being made in the form of a pivoted plate, as there shown, may be made of two sliding pins, the front one being placed horizontally within the breech-block, and the latter being inclined from the rear end of the front one down to the required point to be hit by the shoulder *n*. As the shoulder must lock under the breech before it can reach the firing-pin, the charge cannot possibly be exploded by the blow until after the breech is securely locked.

It will be observed that by this construction of the arm it is rendered more safe, while at the same time the number of motions required for its manipulation is not increased at all.

Having thus described our invention, what we claim, is—

1. In combination with the breech-block B, we claim the retracting firing-pin *e*, arranged to operate substantially as described, whereby the opening of the breech shall draw back the firing-pin, as set forth.

2. The safety-latch L, arranged to engage with and lock the breech-block as the latter

is closed, substantially as and for the purpose set forth.

3. In combination with said latch, we claim the lever F, pivoted to the breech-block, and arranged to first depress the latch and then open the breech, substantially as described.

4. The latch L and the shoulder or projection D, constructed substantially as described, whereby the breech is locked or secured before it is entirely closed, as set forth.

5. The combination of the breech-block B, firing-pin e, and swinging shoulder n, arranged to operate substantially as described, whereby the shoulder first locks the breech and then hits the firing-pin, as set forth.

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