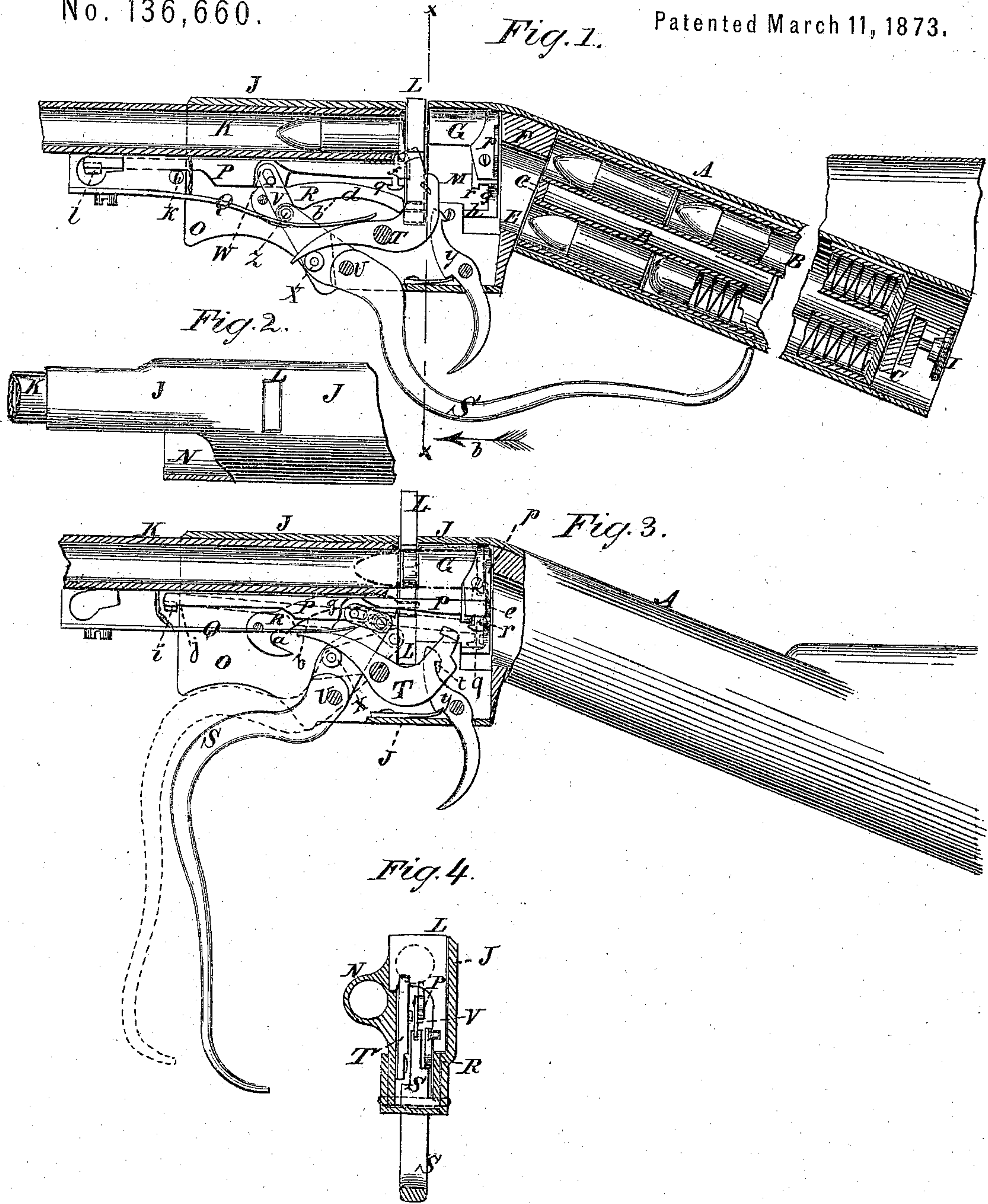


G. D. LUCE.
Magazine Fire-Arms.

No. 136,660.

Patented March 11, 1873.



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Fig. 5.

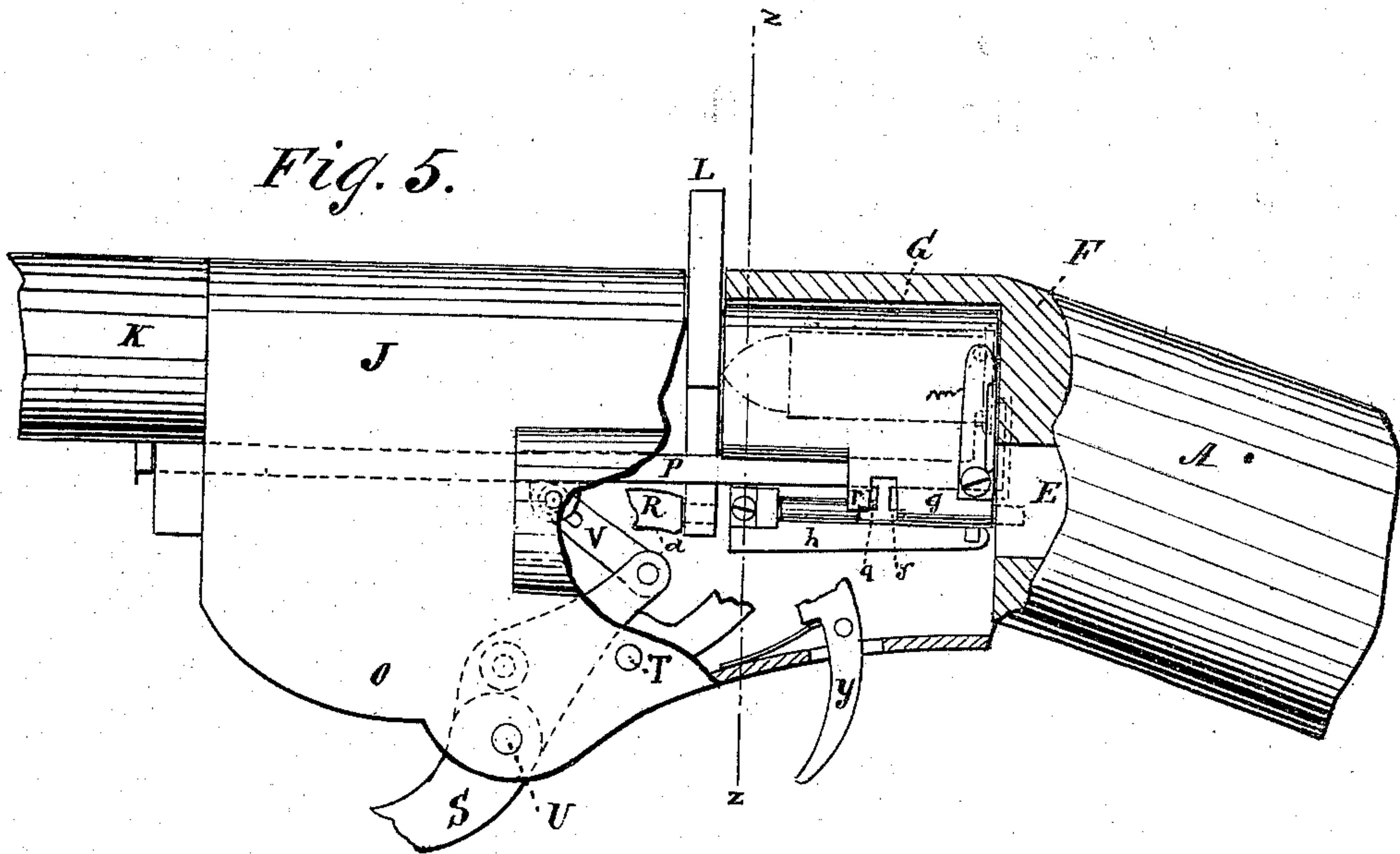


Fig. 7.

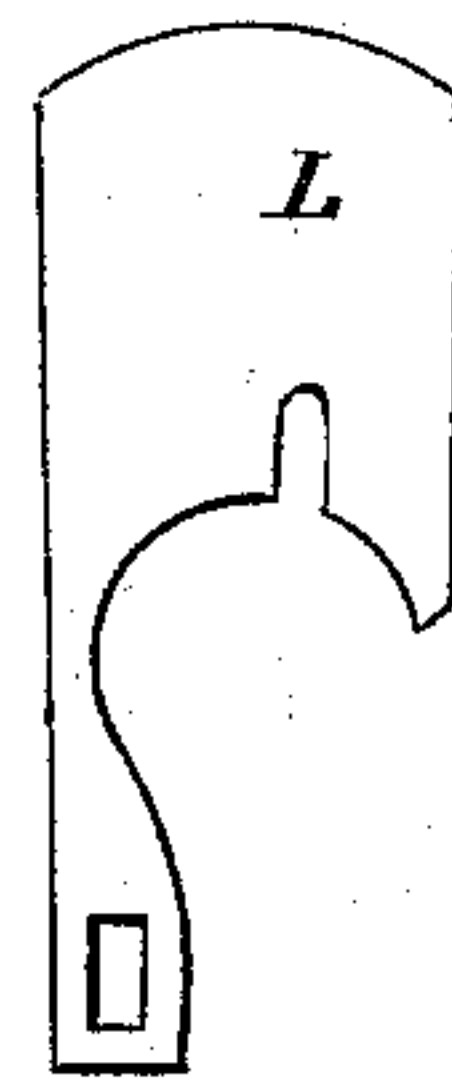


Fig. 6.

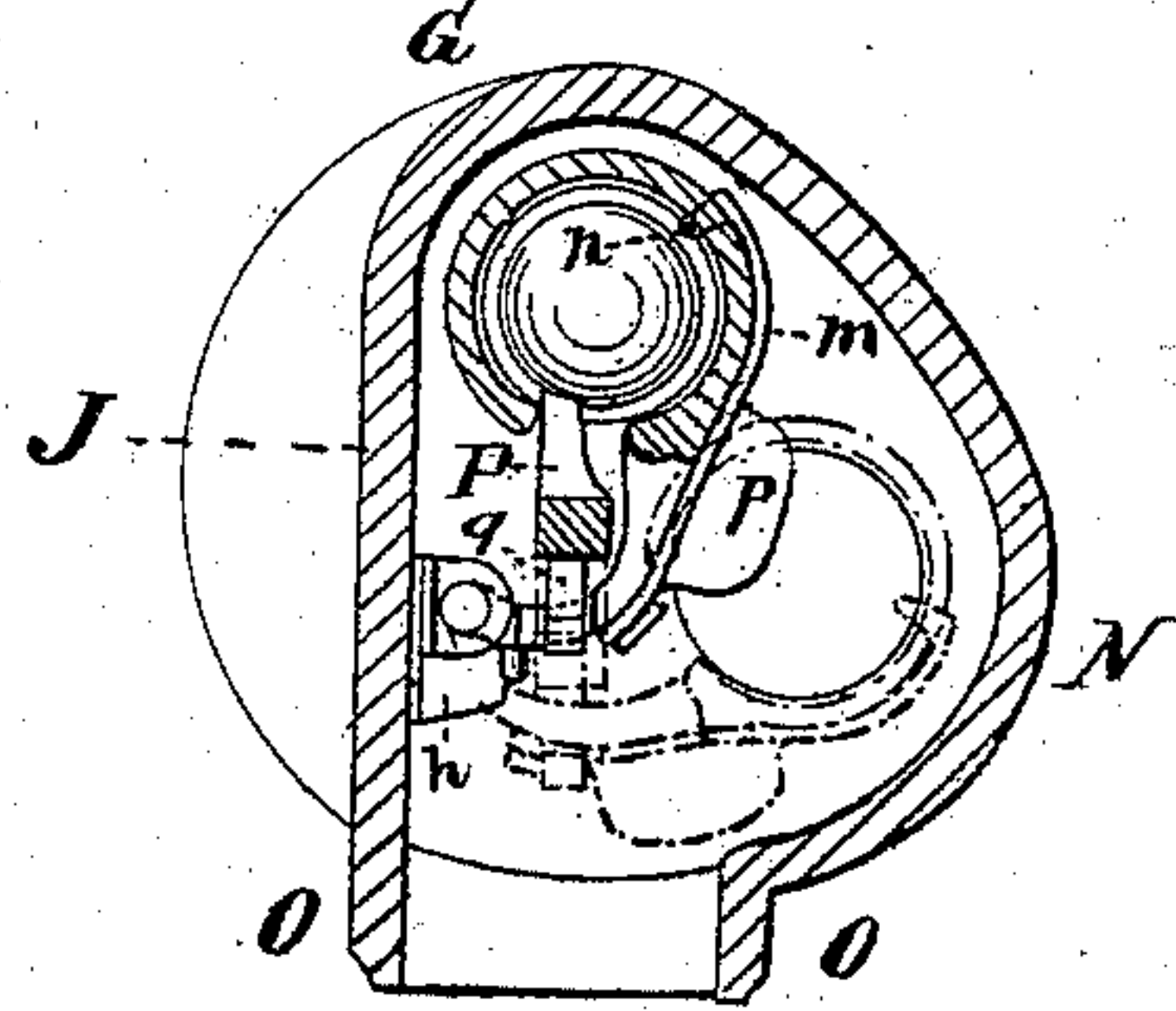
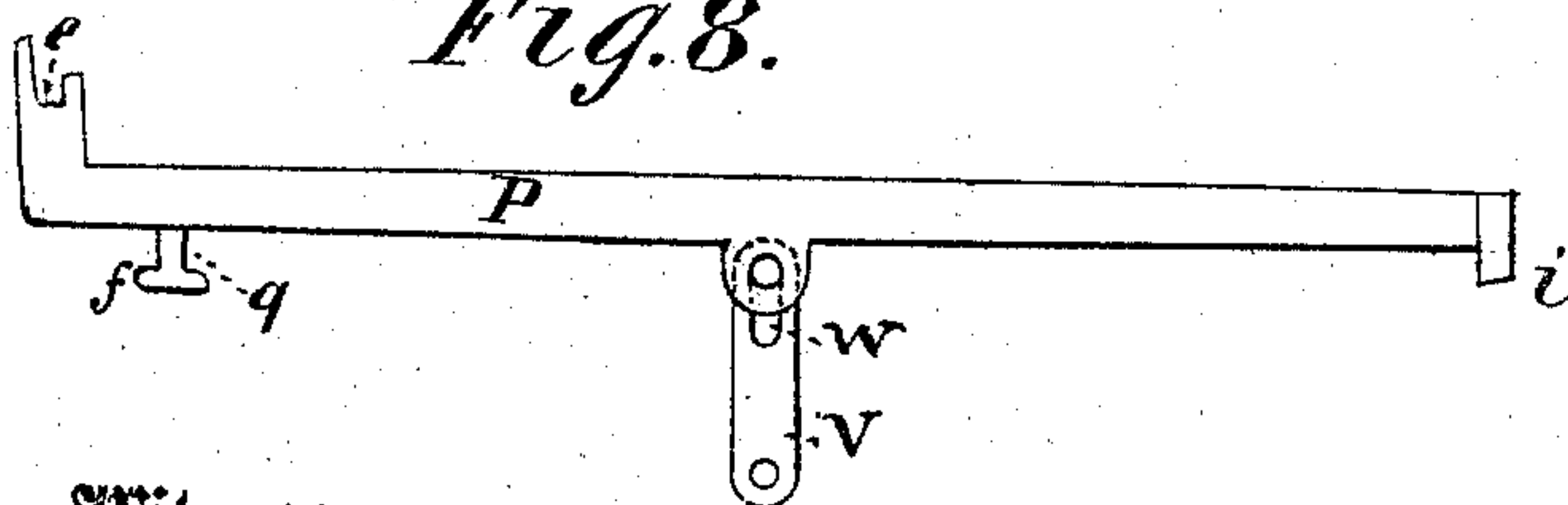


Fig. 8.



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UNITED STATES PATENT OFFICE.

GEORGE D. LUCE, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. 136,660, dated March 11, 1873.

To all whom it may concern:

Be it known that I, GEORGE D. LUCE, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and Improved Magazine-Gun; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification.

My invention relates to improvements in magazine fire-arms; and consists in the construction and arrangement of loading, firing, and cartridge-ejecting mechanism, as hereinafter described and claimed.

Figure 1 is a longitudinal sectional elevation of my improved gun, showing the positions of the parts when the gun is loaded. Fig. 2 is a partial top view. Fig. 3 is a longitudinal sectional elevation of the barrel and frame, showing the positions of the parts just previous to the delivery of the cartridge (shown by broken lines) into the barrel. Fig. 4 is also a section on the line $x x$, but the view is in the direction of arrow b . Fig. 5, Sheet 2, is a side view of the gun with part broken away to show the operative mechanism. Fig. 6 is a cross-section on the line $z z$, showing the arrangement of the carrier and its movement. Figs. 7 and 8 are views of the sliding retractor and breech-block, respectively.

Similar letters of reference indicate corresponding parts.

A represents the hollow sheet-metal stock, constituting the magazine-chamber and containing a magazine of four tubes, B, arranged parallel with each other, connected together and mounted on a pivot, C, at each end, so as to be turned to present the cartridges to the passage E, through the base-block F, for being delivered into the carrier G. The tubes of the magazine have a coiled spring, H, in the lower end for pushing the cartridges into carrier G. In this example the magazine is represented as being provided with a thumb-bit, I, at the lower end for turning it by hand, but I propose to use any other suitable contrivance therefor; for instance, a spring may be attached at the upper end so as to turn it automatically when let free, or a pawl or push-piece and ratchet

or star-wheel may be used. J is a receiver or frame inclosing the loading, firing, and cartridge-ejecting mechanism proper. The same is formed of a metal plate or continuation of the stock so bent or shaped as to be cylindrical in its upper and rear portion, the barrel K screwing into it, as shown, Fig. 1, while its two sides or edges O are parallel below the barrel, Figs. 1, 3. The left side is, however, bent outward to form a tube, N, Figs. 2, 4, and 6, through which the cartridge-shells are ejected. The guard-lever is pivoted to these plates O at U, and is connected at the end of its short arm with the retractor-slide P by a link, V, which has a slotted hole, W, for the pin, which connects it with the retractor, to allow the guard-lever to move a certain distance before pushing the retractor forward. A stud-pin, x , with a friction-roller on it is arranged on one side of the guard-lever S, to work under the hammer to throw it back, to be caught by the trigger Y, when the guard-lever is thrown forward for extracting the shell and introducing a new cartridge. The said guard-lever also has another stud-pin, Z, for acting on the lever R to cause it to raise the breech-plate L, to open the breech for the discharge of the shell and the introduction of a new cartridge. The stud-pin is in the notch a of the lever R when the gun is loaded, and said notch allows the lever and plate L to fall, but when the guard-lever is pushed forward the pin is forced along the lever to the point b and raises the breech-plate L at the time it arrives at said point; but beyond this point the curve d of the lever R is such that the pin merely holds it and the breech-plate up in passing forward and back again.

In passing from said point b back into the notch a again the pin forces the breech-plate to fall and close the barrel. The retractor has a notch, e , Figs. 3 and 8, in the upper hind corner, into which the flange of the cartridge falls before being pushed into the barrel, (as will be presently described,) in which it lies after being discharged, ready for being pushed back by the retractors into the hollow carrier G, when the guard-lever is pushed forward. The retractor also has a notch, f , at the lower

rear corner, which, as soon as the shell has been pushed back into the carrier G, engages the bent arm *g*, by which the carrier is pivoted, it being supported by a spring, *h*; and at the same time a stop-pin, *i*, at the front end of the retractor-slide comes against a shoulder, *j*, and over a pin, *k*, which hold it from going back any further, and also hold it so as to allow it to oscillate on its front end, so that the further movement of the guard-lever pulls the rear end directly downward to swing the carrier down in front of the passage E, to receive another cartridge, as shown in broken lines, Fig. 6.

The cartridge is forced in by the spring of the magazine and forces the shell out through the discharge-tube N, Figs. 2, 4, and 6, the flange of the shell being at this time released from the notch *e* of the retractors by the swinging out of said cartridge with the carrier as the latter is swung down in front of passage E.

In order to prevent the cartridge from being forced through the carrier G by the magazine-spring at the time it is introduced, a little spring, *m*, Fig. 6, is attached to the carrier, with one end, *n*, projecting into it sufficiently to catch the flange of the cartridge when it comes in, and arrest it at the point where it is required to lie while being carried up to the barrel. This spring is pivoted to the side of the carrier in order to allow it to be swung backward a little by the flange of the cartridge-shell coming in contact with it when said shell is pushed back into the carrier by means of the retractor. Thus arranged and operated, it will not obstruct the ejection of the shell through the tube N by the incoming cartridge. The elasticity of the device *m n* adapts it to press snugly against the shell of the cartridge to insure its proper hold on the side of the flange. The carrier G is provided with a flange, *p*, to rest in front of the passage E and prevent the cartridges from coming out while said carrier swings up behind the barrel to present the cartridge.

In this example said flange is represented attached to the spring *m*; but in practice it will, probably, be found better to attach it to the carrier.

The retractor has another notch, *q*, just in advance of the notch *f*, into which a little stud, *r*, Fig. 1, on the carrier comes, just before arriving at the end of its down movement, to hold the retractor from going forward until the carrier has swung upward again so far that the entrance of the cartridge in the barrel will be insured by the cartridge not being pulled forward till the aforesaid upward movement of the carrier. It is for this operation that the link V is provided with the slotted hole before referred to, whereby the guard-lever is allowed to move back-

ward to some extent after the retractor has raised till the carrier has swung upward far enough for the flange of the cartridge to fall into the notch *e*, before said lever sets the retractor in motion.

In order to accommodate the movement of the retractor, the carrier is necessarily provided with a wide slot on the under side.

When the hammer is thrown back by the guard-lever, as before described, the stud-pin *t* on it is caught by the trigger, as shown in Fig. 3.

The stud or projection on the retractor in front of the notch *f* is rounded, so as to cause the retractor to spring down and escape past the flange of the cartridge when the lever S is pulled back, in case a cartridge may fail of being discharged, and be forced back into the barrel with its flange in advance of the projection, which may occur when the last cartridge is fired, on account of there being none in the magazine to force it out of the carrier, and which might injure, or perhaps break, the retractor; but this will not happen if the muzzle of the gun is held down so that the cartridge will fall out of the carrier by its own weight. It is only in case this may be forgotten or neglected that the shell can thus get back into the barrel, and even then the flange will not be in advance of the notch only in case the shell happens to move forward in the carrier before it is raised up to the barrel.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The spring-stud *m*, pivoted to the side of the carrier G, and having a point, *n*, projecting through a slot in the same, as shown and described, whereby it is adapted to swing with the carrier and exert a yielding pressure on the incoming cartridge, tending to arrest it against the action of the spring in the magazine, as specified.

2. The carrier G, arranged to swing on an arm, *g*, between the barrel and the magazine, and provided with a spring, *h*, for throwing it back, substantially as specified.

3. The combination of the guard-lever S, link V, and notched slide P with the pivoted carrier G, substantially as specified, whereby the cartridge may be withdrawn and the carrier swung down, as described.

4. The arrangement of a sliding retractor, P, provided with notches *e f*, with a pivoted carrier, G, whereby the flange of the cartridge is caused to drop into the notch *e* of the retractor as the cartridge is carried to the barrel by the carrier, and the flange of the shell is caused to escape from the said notch as the shell is carried down to the discharging-tube, substantially as specified.

5. The retractor provided with the notch *q* and the carrier with the stud *r*, in such man-

ner as to retain the retractor during a portion of the return movement of the carrier, substantially as specified.

6. The combination of the breech plate L, lever R provided with notch *a*, stud-pin Z, and guard-lever for actuating said plate, substantially as specified.

7. The combination of retractor P, slotted link V, and guard-lever S, pivoted and arranged as shown and described, whereby the

extremity of the inner or shorter arm of the lever may be brought nearer the retractor before the movement of the latter is commenced, and the rear or notched end of the retractor be thrown down to swing the carrier, as specified.

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