

C. S. PETTENGILL.

Revolver.

No 15,388.

Patented July 22, 1856.

Fig. 1.

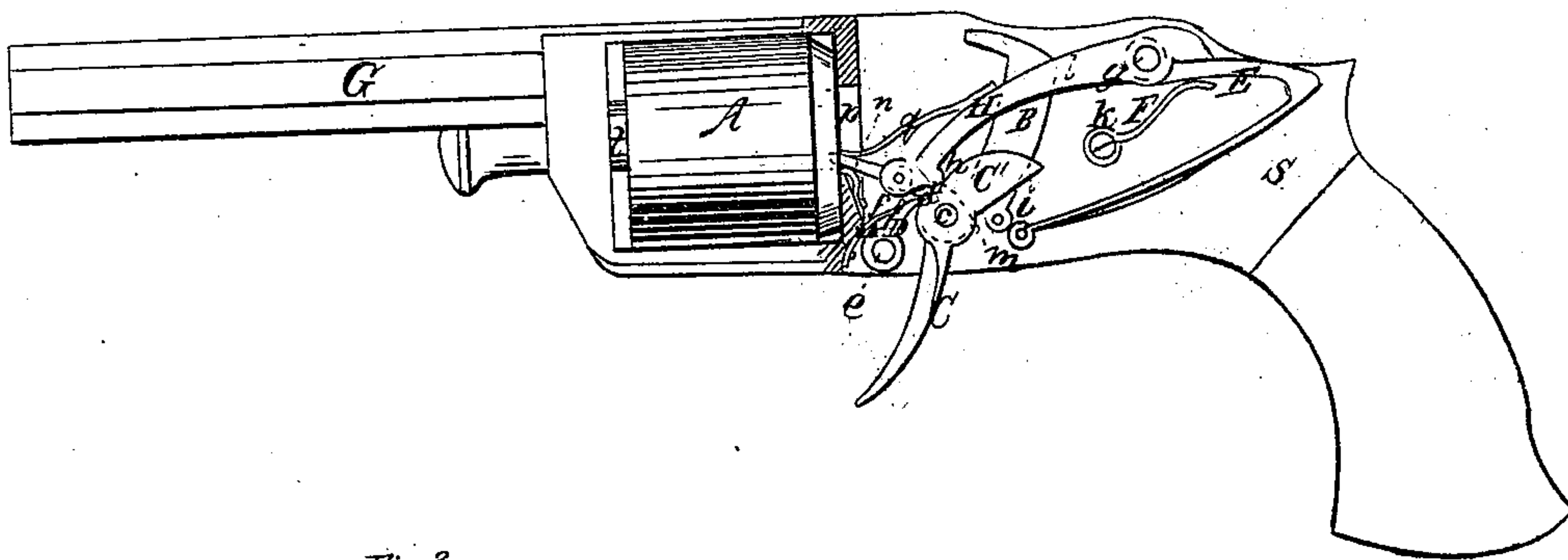


Fig. 3.

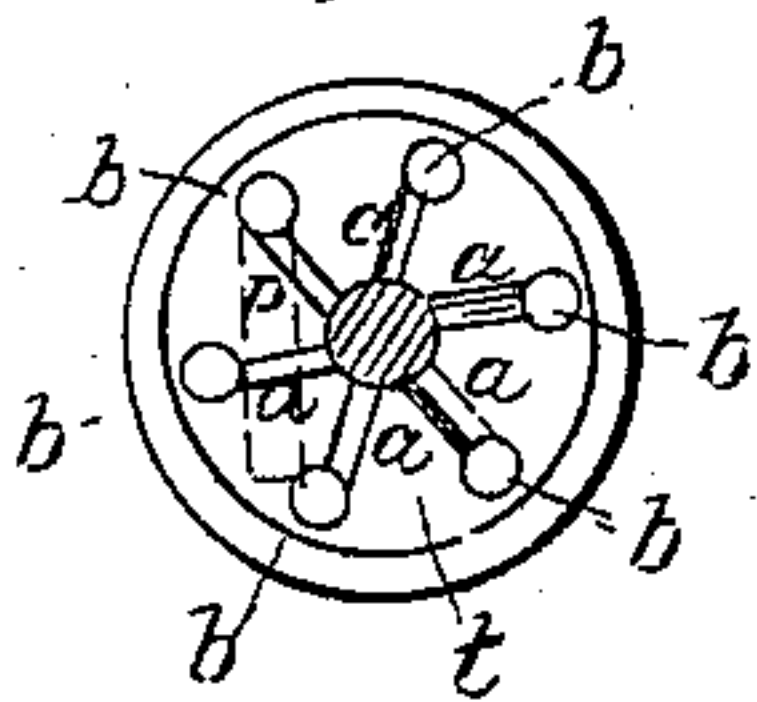
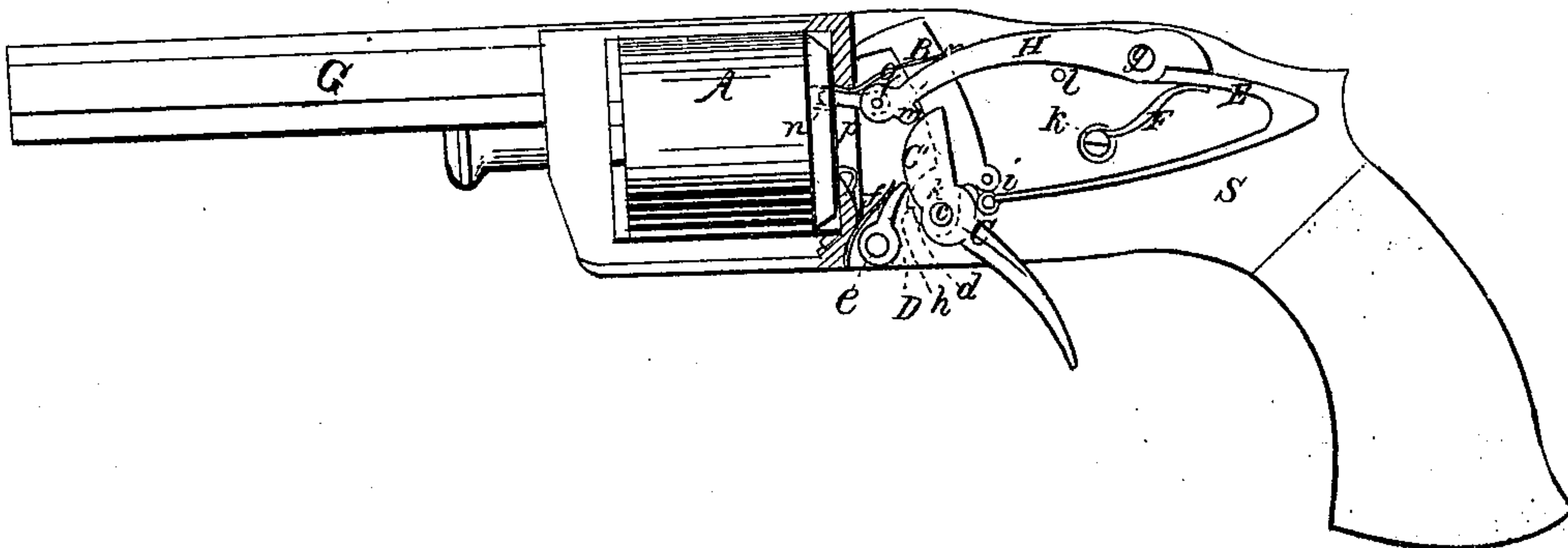


Fig. 2.



# UNITED STATES PATENT OFFICE.

C. S. PETTENGILL, OF NEW HAVEN, CONNECTICUT.

## IMPROVEMENT IN REPEATING FIRE-ARMS.

Specification forming part of Letters Patent No. 15,388, dated July 22, 1856.

*To all whom it may concern:*

Be it known that I, C. S. PETTENGILL, of the city of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Repeating Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of a pistol constructed according to my invention, having part of one side of the stock removed to show the lock. This view represents all the parts in the positions they assume when the pistol is not in use. Fig. 2 is a view similar to Fig. 1, but showing the parts in the positions they occupy at the instant of the firing. Fig. 3 is a rear view of the cylinder, illustrating the mode of rotating and locking the cylinder.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to that description of repeating fire-arms in which a chambered cylinder is arranged to rotate on an axis parallel with the barrel.

The main object of the invention is to enable the operations of rotating the breech and firing to be performed easily with a simple arrangement of mechanism operated by a single pull on one trigger.

In order to accomplish the above result, an important part of the invention consists in certain arrangements and combinations of the parts of the lock by which the hammer is made self-cocking after every fire, and the mainspring is relieved from all strain while the hammer remains cocked.

Other features of the invention consist in certain novel arrangements and combinations of mechanical devices by which the rotating of the cylinder, the locking of the same at the time of firing, and the letting off of the hammer are effected.

To enable those skilled in the art to construct my invention, I will proceed to describe it with reference to the drawings.

A is the chambered cylinder, which is constructed at its rear end with a series of ratchet-formed notches, *a a*, radiating from the center at equal distances apart, as shown in Fig. 3, and terminating at their outer extremities in holes *b b*, drilled into the solid portion of the

cylinder a short distance beyond the bottom of the notches. The number of the above notches and holes corresponds with the number of chambers in the barrel. The cylinder is also intended to be provided with nipples set obliquely into the rear of the several chambers; but this arrangement of nipples is the same as that in other revolvers and constitutes no part of my invention. This cylinder is or may be fitted to the stock S and barrel G in any well-known manner, so as to be capable of the necessary rotary motion.

B is the hammer, which is inclosed entirely within the stock, where it swings on the same pivot, *c*, as the trigger C, the position of which is nearly the same as the position of the trigger of other fire-arms. The hammer is made as long as is possible for it to swing in the stock, and is arranged right in the middle of the stock to strike the nipple of the chamber that is uppermost and in line with the barrel. The hammer is formed with a tumbler, *h*, substantially like the tumbler of other gun and pistol locks, but having only one notch, *d*.

D is the sear, which, instead of being attached to the trigger, as in other locks, is made in the form of a pawl and hung on a separate pin, *e*, placed in front of the tumbler, and is thrown back into the notch *d* of the tumbler, as shown in Fig. 1, to hold the hammer cocked, by means of a spring, *f*, within the stock.

E is the mainspring, which is of the bent form, generally known as the "U-spring." This spring, instead of having its butt-end secured rigidly to the stock, like the mainspring of other fire-arms, is fitted to work on a transverse pin or pivot, *g*, and at its point it is connected by a link or stirrup, *i*, with the tumbler *h*.

F is a smaller spring, arranged to work within the bend of the mainspring. This spring F is attached firmly to the stock at one end by a screw, K, and the other end presses upward against the upper limit of the mainspring, producing a tendency of the rear portion of the mainspring to rise, and the point thereof, which connects with the hammer, to fall and draw down the tumbler, and thus to throw back the hammer. This tendency, however, can only act while the mainspring is free to move on the pivot *g*, at which time its own elasticity can have no play; but by the peculiar action of mechanism yet to be described



the mainspring is always set free to move on the pivot, and therefore exerts no elasticity of its own when the trigger C is left free, and therefore the hammer is always thrown back by the action of the spring F as soon as the trigger is set free after a discharge far enough for the sear D to fall into the notch *d* of the tumbler and cock it, as shown in Fig. 1. The motion beyond that point is prevented by a stop, *l*.

H is a lever working on the same pivot, *g*, to which the mainspring is fitted, and having a long and short arm, the latter of which is formed to lap over onto the mainspring E, and the former is made with a toe, *m*, to rest on a lifting-cam, C', which forms one piece with the trigger. The action of the spring F on the mainspring, when the trigger is set free, causes the short arm of the lever H that overlaps the mainspring to be raised, and the larger arm to be consequently depressed, and the toe of the latter arm, pressing on the edge of the cam C', throws the latter back and runs down to the bottom of it, as shown in Fig. 1, thus throwing forward the trigger; but when the trigger is pulled back the cam C', acting on the toe *m*, lifts up the long arm of the lever, as shown in Fig. 2, and consequently causes the shorter arm to press down upon the mainspring and depress the bend thereof, thus producing a tendency of the point of the spring, which is connected with the tumbler, to rise; but as the tumbler is held by the sear the point of the spring is prevented rising, and thus the spring is strained, so as to develop its elasticity, to act in an upward direction on the tumbler. The strain of the spring increases as the drawing back of the trigger continues; but by the time the toe *m* is raised nearly to the top of the cam, where the lever will produce the greatest strain on the mainspring and give it the greatest force, the cam C' comes in contact with the sear D and a very slightly continued movement serves to throw the sear out of the notch *d* and set free the hammer, which now having the full force of the mainspring upon it is driven violently forward to strike the nipple and explode the charge.

The rotation of the cylinder is effected by means of a dog, *n*, attached by a joint to the extremity of the long arm of the lever, and passing through an upright slot, *p*, made through the recoil-shield I on one side of the arbor *t* of the cylinder, to the notches *a a* in the cylinder. The position of the slot *p* relatively to the cylinder is represented in Fig. 3, where the slot is shown in red outline. The dog forms an angle with the lever, and a spring, *q*, is applied between them, which tends to throw the point of the dog toward

the cylinder. When the trigger is free, as shown in Fig. 1, the dog lies in a notch occupying the position of *a*, as indicated in Fig. 3; but as the dog is raised by the action of the lever H when the trigger is drawn the rotary movement of the cylinder produced by the dog causes the hole *b* at the end of the notch to approach the slot, and by the time the cylinder has moved as far as required the hole is right opposite the slot *p*, where the dog falls right into it, as shown in dotted outline in Fig. 2, thus locking the cylinder so as to be incapable of rotating either backward or forward. This falling of the dog into the notch of course takes place before the sear is thrown out of the notch *d*. When the trigger is liberated after the discharge, and the long arm of the lever is thrown down by the action of the spring F to effect the recocking of the hammer, the dog *n* is drawn out of the hole *b* and moved down the slot *p* to the next notch *a* by the movement of the lever.

Having thus described my invention, I will proceed to point out what I claim as new and desire to secure by Letters Patent—

1. In combination with the arrangement of the mainspring to work on a pivot, so as to be capable of relief from all strain, except at the time of firing, the application to the said spring of a spring, F, operating upon it, as described, to draw back and effect the cocking of the hammer, substantially as herein described.

2. In combination with the arrangement of the mainspring to work on a pivot, as described, the lever H, and the cam C' on the trigger, operating together and upon the mainspring, substantially as specified, to strain and develop the elasticity of the mainspring by the act of drawing the trigger to fire.

3. The sear D, as arranged, entirely disconnected from the trigger, and operated upon to set free the tumbler by means of a cam, C', on the trigger, substantially as herein described.

4. The attachment of the dog which operates in the ratchet-notches *a a* on the cylinder to the same lever, H, by which the strain is thrown on the mainspring.

5. The arrangement of the slot *p* in the recoil-shield, and the holes *a a* at the end of the ratchet-notches on the cylinder, whereby the cylinder is locked so as to be incapable of rotation in either direction before the hammer is let off, substantially as herein set forth.

C. S. PETTENGILL.

Witnesses:

E. I. SANFORD,  
CHAS. W. ALTON.