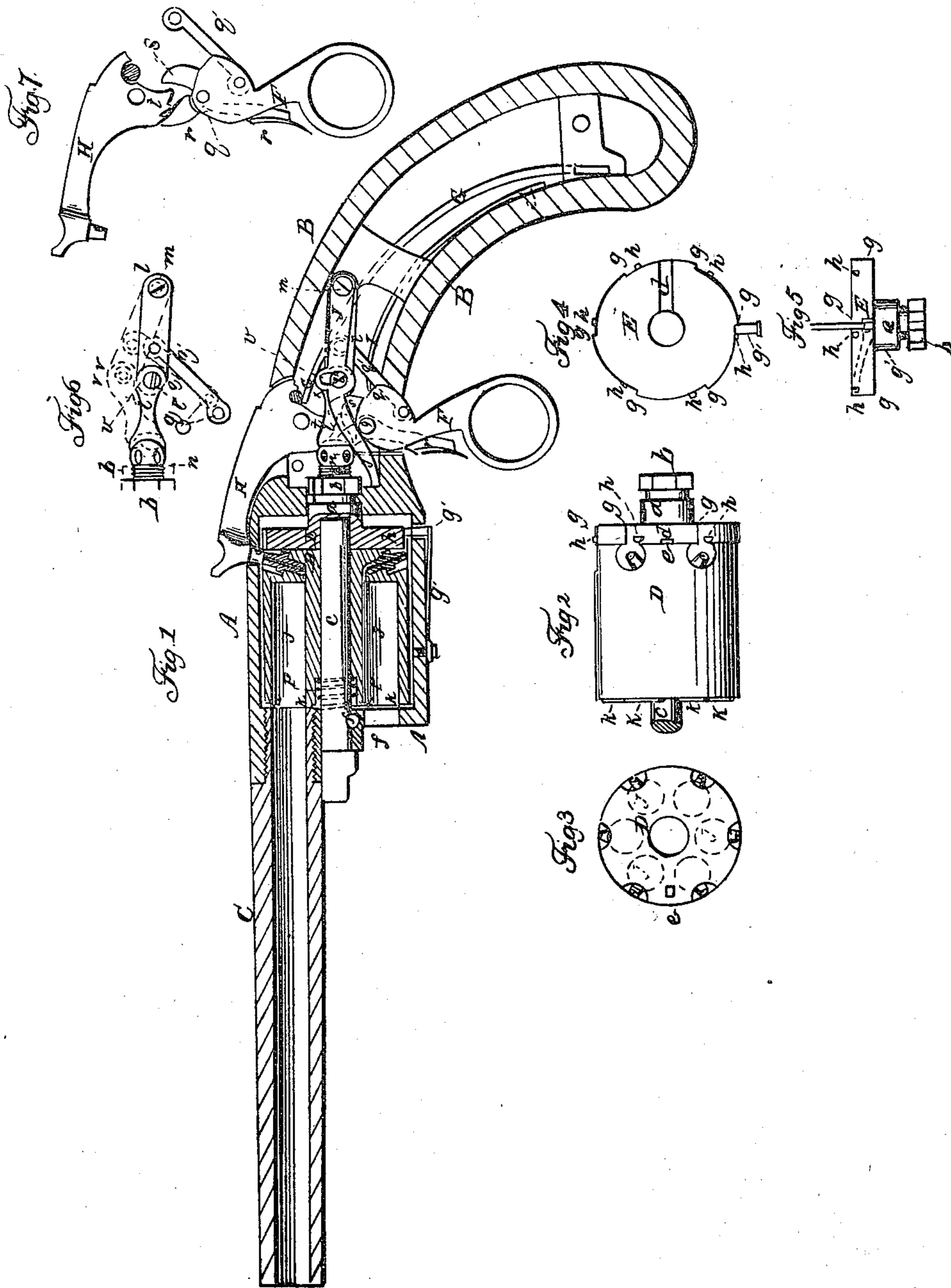


H. S. NORTH.

Revolver.

No. 15,144.

Patented June 17, 1856.



UNITED STATES PATENT OFFICE.

HENRY S. NORTH, OF MIDDLETOWN, CONNECTICUT.

IMPROVEMENT IN FIRE-ARMS.

Specification forming part of Letters Patent No. 15,144, dated June 17, 1856.

To all whom it may concern:

Be it known that I, HENRY S. NORTH, of Middletown, in the county of Middlesex 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 longitudinal central section of a pistol constructed according to my invention. Fig. 2 is a side view of the rotating chambered cylinder and rotating recoil-shield detached from the pistol. Fig. 3 is a rear view of the cylinder. Fig. 4 is a front face view of the rotating recoil-shield. Fig. 5 is a view of the same, looking from underneath it, showing also the stopper. Fig. 6 is a side view of the toggle by which the cylinder is forced up to a tight connection with the barrel. Fig. 7 is a side view of the hammer, the lever by which the cocking of the hammer and rotating of the breech are effected, and the trigger.

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

This invention relates to fire-arms in which the rotating many-chambered cylinder is arranged upon an axis parallel with the barrel.

The first feature of my invention consists in the employment of a toggle-connection between the cylinder or the rotating recoil-shield and the stock, for the purpose of effecting a longitudinal movement of the cylinder to make it clear the barrel in rotating, and to force it up into a tight connection therewith after the rotating movement has been effected, said toggle-connection being operated by means of a finger-lever under the stock.

The second feature of my invention consists in placing a regulating-screw between the forward end of the above-mentioned toggle and the rotating recoil-shield or cylinder, for the purpose of adjusting the connection between the cylinder and barrel.

The third feature of my invention consists in combining the dog by which the rotation of the recoil-shield and cylinder is effected with the toggle in such a manner that it is operated by bending of the toggle to let the cylinder move back.

The fourth feature of my invention consists in causing the cylinder, by its back-sliding

movement, to throw itself at the proper times into (at one period) a stay-ratchet relationship, and (at another period) into a locked connection with a spring-stopper, as will be hereinafter described.

A is the metal breech-frame, which is made all in one piece with or attached to a metal frame, B, which extends to the butt of the stock.

C is the barrel, which is screwed into the breech-frame A.

D is the rotating chambered cylinder, and E the recoil-shield. The recoil-shield consists of a circular disk of steel, or other metal, of the same diameter as the cylinder, having a journal, *a*, on its back side to fit in a bearing in the rear of the breech-frame A, and having at the rear extremity of this journal a circular ratchet, *b*, the number of whose teeth corresponds with the number of chambers *jj* in the cylinder. The ratchet is like that generally made on the cylinder for the purpose of rotating it, and is for rotating the recoil-shield. The front face of the recoil-shield is faced flat to fit snugly up to the rear of the cylinder, which is also faced flat. The cylinder is bored centrally throughout to receive the arbor *c*, on which it rotates, and the recoil-shield has a hole bored to some depth from its front face to receive the extremity of the said arbor, which, when inserted through the front of the breech-frame A, through the cylinder, and into the hole in the recoil-shield and secured by a transverse pin, *f*, keeps both the cylinder and recoil-shield in place. The front face of the recoil-shield has a groove, *d*, in it extending radially from its outer circumference some distance inward, and the rear face of the cylinder has a pin or projection, *e*, standing out from it, of such size as to fit the groove *d*, and by that means to connect the cylinder and recoil-shield, so that the latter in rotating will give motion to the former.

The above combination of the cylinder with a rotating recoil-shield allows the cylinder to be taken out by simply drawing the arbor *c* in a forward direction out of the cylinder and sliding out the cylinder laterally from the frame; but care should be taken that before drawing out the arbor the groove *d* stands in a position lateral to the breech-frame A to allow the pin or projection *e* to slide out. When the cylinder has been taken out the rotating recoil-shield

can be taken out by drawing it forward to withdraw the journal *a* from its bearing in the back of the frame, to admit of which the exterior of the ratchet *b* must be made no larger than the journal *a*.

Every chamber *j* of the cylinder is furnished at its front end with a cone, *k*, which extends a little beyond the front face of the cylinder, for the purpose of entering a conical seat in the rear of the barrel to prevent the escape of gas and the consequent loss of the force of the explosion; or the same effect may be produced by making a seat around the front of the chamber to fit over a cone on the rear of the barrel. This makes it necessary for the cylinder to receive a backward longitudinal movement after every discharge and before the rotating movement to bring another chamber in line with the barrel takes place, and a forward movement after the rotation and before firing to bring the cone and seat into close contact to make a tight joint. This movement, however, forms no part of this invention, but only the method of producing the said movement by a toggle. *l l'* in Figs. 1 and 6 is this toggle, one end of which is connected by a pin, *m*, with the stock-frame B, and the other end is made with a concave seat or female center to receive and form a bearing for the head of the screw *n*, which screws into a female screw in the center of the rear of the recoil-shield. The relation between the recoil-shield and the toggle is so adjusted by the screw *n* that when the toggle is straightened, as shown in Fig. 1, and in black outline in Fig. 6, at a time when a chamber is in line with the barrel it drives up the recoil-shield and cylinder and holds the cone and seat tightly together, thus making a tight joint between the chamber and barrel; but by the bending of the toggle, as shown in red outline in Fig. 6, the recoil-shield is allowed to be forced back by a spring, *p*, which is coiled round the arbor *c*, between the front of the cylinder and the breech-frame A, and received within a cavity in the cylinder.

The toggle is actuated to produce the above results by means of a finger-lever, F, (see Figs. 1 and 7,) which also serves the purpose of cocking the hammer. This finger-lever works upon the same fixed pivot or fulcrum-pin, *q*, as the trigger *r*. It is connected with the toggle behind the joint-pin *l* thereof by means of a link, *q'*, which causes it to bend the toggle when its lower end is drawn back and straighten it when it is moved forward, the joint of the toggle being prevented descending beyond a straight position by shoulders on each part above the joint. (See *v v*, Fig. 6.)

The finger-lever F is furnished with a rigid dog, *s*, which is behind the tumbler *t* of the hammer H, and this dog is thrown forward by drawing back the lower end of the lever, and thus is caused to push forward the tumbler *t* and cock the hammer simultaneously with the bending of the toggle to let the cylinder come back.

The hammer is substantially like the ham-

mer of a common gun or pistol, having the same notches in its tumbler for the sear of the trigger to fall into to hold it in full or half cock, the only difference from the common tumbler being that the back part of the tumbler is made of a suitable form for the dogs to engage with it to effect the cocking. It is actuated when let off by the drawing of the trigger *r* by means of a mainspring, G, which is arranged substantially like the mainspring of a common gun or pistol lock.

The trigger *r* is substantially like the trigger of other fire-arms. It is partly received in a slot in the finger-lever F, and the part which protrudes from the stock stands in front of the finger-lever, so that the person using the arm can work the finger-lever with the second finger and the trigger with the first finger of his right hand. The finger-lever F has a spring, I, applied to press upon a shoulder, *q*, behind the pin *q*, which tends to draw down the joint of the toggle and straighten it, and which, when the shoulders *v v* are in contact, keeps the toggle in a sufficiently rigid condition to preserve a tight and immovable connection between the cylinder and barrel.

J is the dog by which the ratchet *b* is operated upon to rotate the recoil-shield and cylinder. This dog is hung upon the pin *m*, which attaches the toggle to the stock, and is provided with a slot, *x*, which fits the joint-pin *l* of the toggle. When the toggle is straight, as it is always intended to be when the finger-lever F is at liberty for the spring I to act upon it, the point of the dog stands below the ratchet *b*, and the pin *l* is near the bottom of the slot *x*, and hence when the finger-lever F is drawn back to cock the hammer and bend the toggle the dog does not move till the toggle is bent enough for the joint-pin *l* to reach the top of the slot *x*, when the said pin commences to move the dog. This allows the cylinder to be moved back by the spring *p* far enough to rotate clear of the barrel before the dog commences to act on the ratchet *b*, though the backward movement of the cylinder and recoil-shield continue as long as the toggle and dog continue to move upward. After the rotation of the cylinder and cocking of the hammer have been effected the liberation of the finger-lever F by the operator allows the spring I, by its action on the shoulder *q*, to straighten out the toggle and drive up the recoil-shield and cylinder and throw down the dog J over a tooth of the ratchet *b*, ready to repeat its operation after the fire, the dog having sufficient elasticity to allow it to pass over the tooth of the ratchet. In case the spring I should fail to operate or should become weak the lever F may be moved forward by the finger of the operator, being made with a ring to receive the finger, which affords convenience for pushing it forward as well as drawing it back.

The periphery of the recoil-shield is furnished with a number of ratchet-teeth, *g g*, corresponding with the number of chambers in the cylinder, said ratchet-teeth being set the same

way as those of the ratchet *b*, and being for the purpose of engaging with a spring-stopper, *g'*, working through a hole in the breech-frame to prevent the recoil-shield and cylinder being returned by the dog *J* in its return movement. These teeth extend all across the periphery of the recoil-shield. There are also upon the periphery of the recoil-shield a similar number of stop-pins, *h h*, arranged at such distances from the bottom of every tooth as to leave just room for the stopper *g'* to enter between them and the ends of the ratchet-teeth, and consequently when the stopper falls between them it locks the cylinder so that it cannot move in either direction. These pins are near the front of the recoil-shield, and when the recoil shield and cylinder are in their forward position the stopper occupies a position relatively to a ratchet-tooth and stop-pin. (Shown in Figs. 4 and 5.) When the finger-lever *F* is drawn backward to cock the hammer and draw back and rotate the cylinder, the cylinder rotates so far before the recoil-shield moves back far enough for the stop-pin to catch the stopper, its rotation has commenced and carried the bottom stop-pin past the stopper, after which the relative longitudinal and rotating movements of the recoil-shield cause the stopper to describe on the periphery of the recoil-shield the red lines shown in Fig. 5, so that when the rotating movement terminates and the stopper slips over the tooth *g* it falls between the tooth and stopper, and thus not only prevents the shield moving too far, but also prevents it being returned by any reaction that may be produced by its sudden stoppage. When the finger-lever *F* is allowed to move forward the stop-pin *h* works clear of the stopper *g'*, as it is not required after the dog *J* begins to descend, for the action of the said dog tends to throw the edge of the ratchet-tooth *g* into contact with the stopper.

The same arrangement of ratchet-teeth and stop-pins might be used on the rear part of the periphery of the cylinder of a firm-arm made without the rotating recoil-shield. The toggle movement might also be applied to such an arm.

The toggle-connection between the cylinder and stock effects the same result as has been before accomplished by a wedge, as in the patent of Henry S. North and C. D. Skinner, dated

June 1, 1852; but it can be fitted at much less expense, and enables simpler mechanism for rotating the cylinder, and it enables the whole of the lock to be made more compact.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The employment of a toggle-connection, *l l*, between the cylinder or the rotating recoil-shield and the stock, for the purpose of allowing and producing the longitudinal movement of the cylinder, to enable it to clear the barrel in revolving, and of forcing the cylinder up to the barrel to make a tight connection therewith, substantially as herein described.

2. Placing a regulating-screw, *n*, between the front end of the toggle-connection and the cylinder or recoil-shield, substantially as described, for the purpose of adjusting the connection between the cylinder and barrel without requiring a great degree of accuracy in the fitting of the toggle-movement, and for the purpose of compensating for any wear.

3. Connecting or combining the dog *J*, by which the rotating motion of the recoil-shield and cylinder is produced, with the toggle-connection *l l*, in such a manner that it is operated by the bending of the toggle to allow the cylinder to move back, substantially as herein described.

4. Though I do not claim, of itself, the use of a positive stop or catch to lock the cylinder after its rotation, as such connected by complicated devices with the trigger and otherwise has before been done; nor yet claim the mere employment of an additional ratchet to prevent back rotation of the cylinder, I do claim causing the cylinder during the one portion of its longitudinal movement to form a ratchet-connection with a spring-stopper, *g'*, that admits of the cylinder's rotation only in the one direction, but on the completion of the cylinder's rotating movement and at the termination of the back longitudinal travel thereof forms a positive stop to the cylinder by means of the ratchets *g g* and stop-pins *h h* on the sliding cylinder or recoil-shield, arranged and acting in concert with the stopper *g'*, essentially as described.

HENRY S. NORTH.

Witnesses:

JULIA A. JONES,
JONATHAN BARNES.