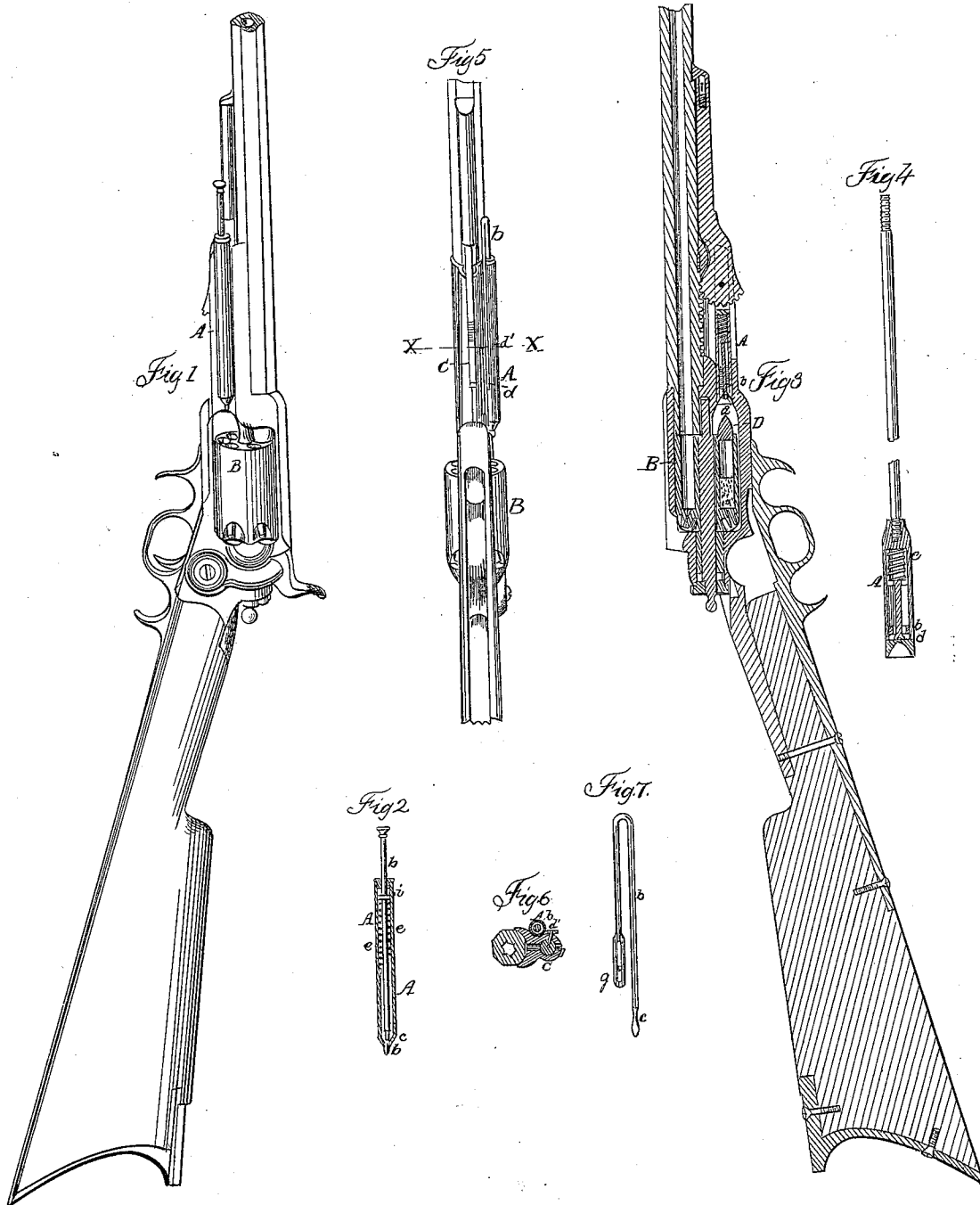


S. COLT.  
Revolver.

No. 16,716.

Patented March 3, 1857.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN THE MODE OF LUBRICATING FIRE-ARMS.

Specification forming part of Letters Patent No. 16,716, dated March 3, 1857.

*To all whom it may concern:*

Be it known that I, SAMUEL COLT, of Hartford, in the State of Connecticut, have invented a certain new and useful Method of Preventing Balls from Fouling the Barrels of Rifles and other Fire-Arms, and facilitating the passage of the balls through the barrels in the discharge; and I do hereby declare that the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents the lubricator applied to a repeating rifle; Fig. 2, a longitudinal section of the lubricator. Fig. 3 is a longitudinal section of a repeating rifle with the lubricator applied to the rammer; Fig. 4, a section of a rammer for muzzle-loading arms with the lubricator applied thereto; Fig. 5, an elevation of a repeating rifle, representing the lubricator as operated by the rammer; Fig. 6, a cross-section taken at the line *xx* of Fig. 5, and Fig. 7 a separate view of the stem of the lubricator.

It is well known that the barrels of fire-arms, particularly those that are rifled, become fouled by the passage of the leaden balls through them in the act of firing, and that such fouling is of serious injury, and although many plans have been devised with the view to remedy this evil, I am not aware that any of them, prior to my invention, have been practically successful.

The nature of my invention consists in applying lubricating matter in the barrels of fire-arms after the ball has been inserted, whether such lubricating matter be applied to the outer surface of the ball or the inner surface of the barrel, by means of which the fouling of the barrel by the ball is effectually prevented and the passage of the ball in the discharge greatly facilitated, while at the same time the lubricating matter will be prevented from reaching the charge of powder.

The mode of application of my improved method, which I have practiced with success, and which I prefer as applied to many-chambered rotating-breech fire arms, is represented in Figs. 1 and 2 of the accompanying drawings, in which A is a small metal tube attached to the under part of the barrel and by the side

of the rammer generally employed in that class of arms manufactured by me. The axis of the said tube is in line with the bore of one of the chambers of the rotary breech B when another of the said chambers is in line with the barrel. A cylindrical stem, *b*, is fitted to slide centrally in the said tube, and passes through a central hole in each end thereof. The outer end of this stem projects to a convenient distance beyond the outer end of the tube, and is there provided with a head or button for the convenience of pushing it toward the breech. It is surrounded by a helical spring, *e*, within the tube, by the tension of which it (the stem) is drawn up to the position represented in the drawings, but which admits of forcing the inner end down into the chamber which for the time being is in line. The inside of the tube is provided with suitable projecting guides to keep the stem in a true central position. The tube is charged with oil or other suitable liquid lubricating matter through a hole provided with a plug, *z*. The surface of the stem *b* is recessed at *c* so far within the inner end that when it is drawn out by the tension of the spring the end beyond the recess closes the aperture at the inner or lower end of the tube to prevent the escape of the lubricating matter; but when the stem is forced down or toward the breech the passage of the recess by the aperture of the tube permits the lubricating matter to run out and hang by capillary attraction on the inner or lower end of the stem, which is then carried into one of the chambers of the breech to deposit such lubricating matter thus discharged from the tube onto the outer surface of the ball in the chamber, where it runs and spreads over the entire surface of the ball so exposed. No more lubricating matter than is required can escape, because it is only during the passage of the recess that the escape can take place. That portion of the surface of the ball which is toward the muzzle being thus coated with oil or other equivalent lubricating matter, as the ball is forced through the barrel by the discharge, the lubricated surface of the ball runs in contact with the bore, and thus effectually prevents the abrasion of the ball, and the consequent fouling, and greatly reduces the friction of the ball as it passes through the barrel, while at the

same time no portion of the lubricating matter can reach the charge of powder back of the ball.

Instead of the mode of application above specified, I have contemplated the application of my invention to repeating fire-arms having the many-chambered rotating breech by forming the lubricating-tube A in the rammer usually employed for driving or ramming the balls down in the chambers as they are successively brought in line with the rammer by the rotation of the breech. In this mode of application the rammer is made tubular, with the head concave to fit the surface of the ball D. The bottom of this cavity is pierced with a small hole communicating with the tubular part A, which contains the lubricating matter. Within the tubular part there is a stem, *b*, surrounded and acted upon by a helical spring, *e*, which forces it downward, that its lower end, which is in the form of a valve, may close the aperture in the tube to prevent the escape of the lubricating matter. The extreme end of the stem, at *d*, projects within the concave recess of the rammer, so that after the ball has been inserted in the chamber and brought under the rammer, in the act of forcing down the ball by the rammer, the projecting part *d* of the stem comes in contact with the end of the ball, by which it is forced back to open the valve and permit the escape of the lubricating matter, which then spreads over the surface of the ball. The moment the rammer is lifted up the tension of the spring forces the stem down to close the aperture and prevent the further escape of lubricating matter.

The rammer can be operated in the usual or any other convenient manner.

The same mode of application will answer for the rammers of muzzle-loading fire-arms, as represented in Fig. 4, where like parts are indicated by the same letters as in Fig. 3.

I have also contemplated the application of my said invention to repeating fire-arms with a many-chambered rotating breech, with the lubricator placed by the side of the rammer, but so connected with the rammer that by the act of ramming the ball in one chamber the ball in the chamber next to it will be lubricated. This mode of application is represented in Figs. 5, 6, and 7 of the accompanying drawings, in which A represents the lubricator, constructed and located as in Figs. 1 and 2, above described; C, the usual rammer; B, the many-chambered rotating breech, and *b* the stem, with its recess *c*; but the end of the stem which projects outside of the lubricating-tube, instead of being straight, to be operated independently of the rammer, as in Figs. 1 and 2,

is bent around, and the bent part extends down parallel with the part within the tube, and the extreme outer end is slotted, as at *s*, to receive a pin, *d'*, which slides therein, and which is attached to the rammer C, and working in a slot, *g*, cut through the surrounding case of the rammer. By this arrangement, as the rammer is forced down to ram a ball in one chamber the pin *d'* at first slides in the slot *s* of the stem until it reaches the lower end of the said slot *s*, and then the continued movement of the rammer carries down the stem to lubricate the ball in the chamber corresponding therewith; and as the rammer is drawn out the pin *d'* acts against the upper end of the slot *s* to restore the stem to its original position. In this mode of application no spring is required for restoring the stem to the required position in the lubricating-tube.

It will be obvious from the foregoing that many other changes may be made in the mode of application of my said invention—such, for instance, as substituting a small pump or syringe for ejecting the lubricating substance, and that the lubricating substance, instead of being applied to the ball, may be applied to the inner surface of the barrel after the ball has been rammed home, as the object of my invention is to lubricate the surfaces which act on each other as the ball is forced out of the barrel in the act of firing.

And although I have only described the application of my said invention to the rammers of muzzle-loading fire-arms, and to repeating fire-arms with the many-chambered rotating breech, it will be obvious that it is equally applicable to other repeating arms and single breech-loading arms; and it will also be obvious that motion may be imparted to the instrument which discharges the lubricating matter in various ways, although I prefer the modes above described.

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

The method of applying oil or other lubricating matter to the outer surface of the ball, or, as the equivalent, to the bore, in close proximity with the ball, after the ball has been inserted, by means of an instrument having a reservoir of liquid lubricating matter, in combination with a valve or other equivalent means for discharging the required quantity of lubricating matter, substantially as described, and for the purpose set forth.

SAML. COLT.

Witnesses:

M. JOSLIN,  
J. B. COLT.