W. C. CROSS.

SPRING AIR-PISTOL.

No. 182,899. Patented Oct. 3, 1876.

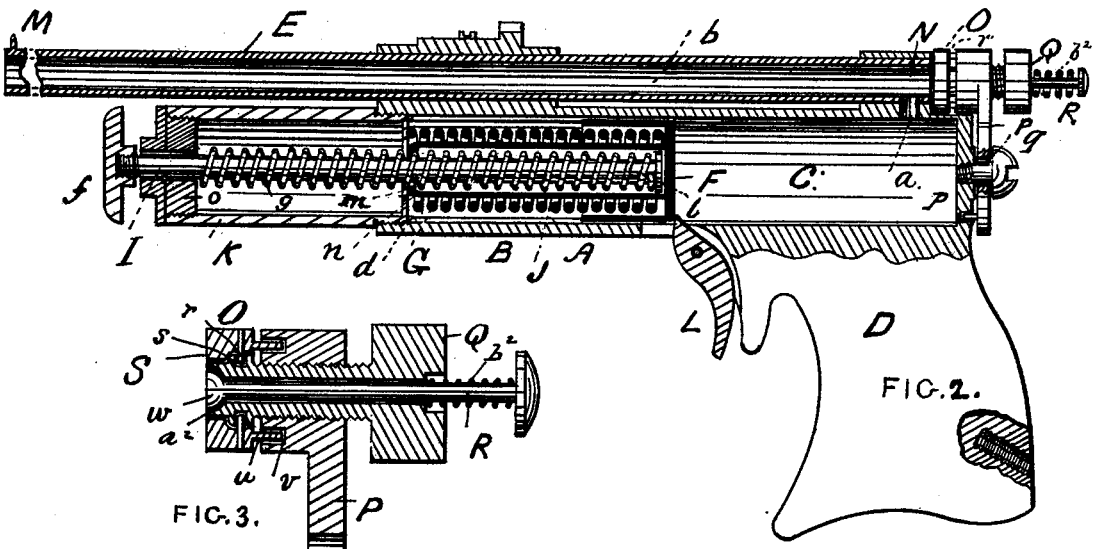


FIG. 2.

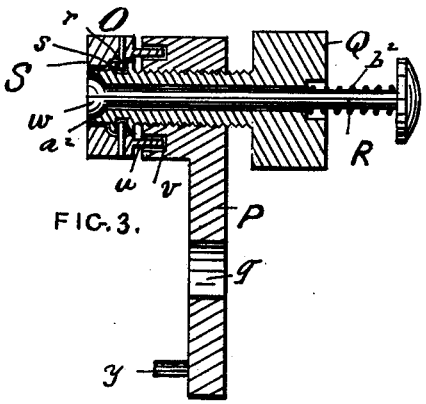
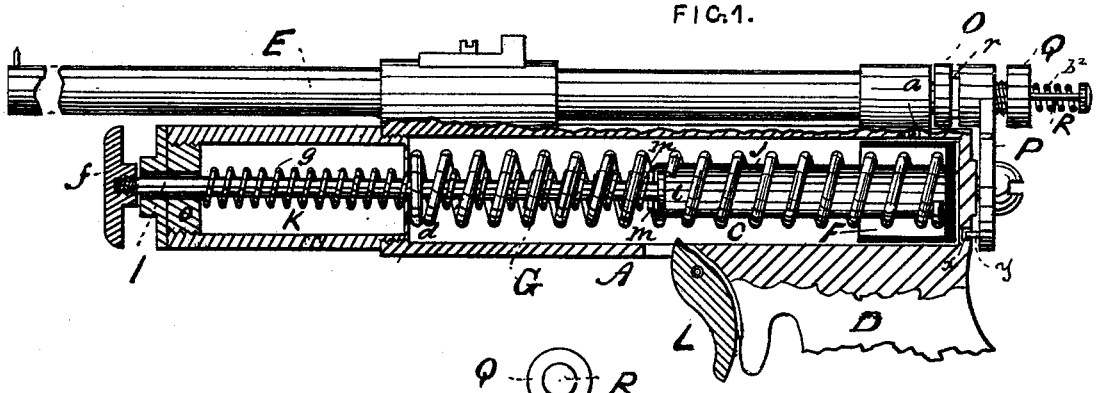


FIG. 3.

FIG. 1.



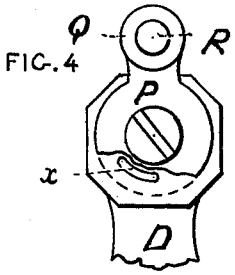


FIG. 4

WITNESSES.

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IMPROVEMENT IN SPRING AIR-PISTOLS.

Specification forming part of Letters Patent No. **182,899**, dated October 3, 1876; application filed August 3, 1876.

To all whom it may concern:

Be it known that I, WILLIAM C. CROSS, of Boston, county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Spring Air-Pistols, of which the following is a specification:

In the accompanying plate of drawings, Figures 1 and 2 are central and longitudinal sections of a spring air-pistol, showing my present improvements; Fig. 3, an enlarged view in detail, hereinafter referred to, and Fig. 4 a view at the breech of the pistol-barrel.

This invention relates to certain improvements in spring air-pistols; and my invention consists of a novel construction of parts, which will be fully hereinafter described, and specifically pointed out in the claims, a preliminary description being therefore deemed unnecessary.

In the drawings, A represents the frame or stock of the pistol, of which frame the part B contains the air magazine or chamber C, and the handle D; E, the barrel, secured to the upper side of the part B to frame A; *a*, an air-passage leading from rear or breech end of chamber *b* of barrel E to the rear end of air-chamber C, thus making an air communication between the two chambers; F, the air plunger or piston for forcing air from the air-chamber C into the barrel-chamber *b*, and G the coiled spring for driving the plunger F.

The plunger F and its spring G are both arranged within the air-chamber C, and the spring lies between the forward end *d* of chamber C and the plunger F. I is a stem-rod, having a head or handle, *f*. This rod I is surrounded by a coiled spring, *g*, and it enters a tube, J, of the plunger F, and in such tube it has a head, *l*. *m*, a shoulder at *n* on tube J, projecting inwardly so that the rod-head *l* will abut against it when the rod is pulled outwardly. The rod I plays through a screw-nut, *o*, which is screwed to one end of a casing, K, that at its other end makes the forward end *d* of the air-chamber, and is thereat adapted to be screwed in place on the air-chamber. The coiled spring *g* to rod I lies on the rod I, between the head of the rod and the screw-nut *o*, through which the rod plays, and when the rod is drawn outwardly through the screw-nut said spring is compressed between the head of the rod and said screw-nut, so that in its reaction it will throw the rod back. L, the trigger. This trigger is arranged as ordinarily, and it is in position to catch over the solid or inclosed end of the plunger F, when said plunger is drawn forward against its spring G, (see Fig. 2,) and thus holds the plunger until desired to discharge the pistol, which is done by simply pressing upon the trigger, which releases it from its said engagement with the plunger. The air-plunger F, as shown in Fig. 2, is in position for forcing the air between it and the rear end of the air-chamber into the barrel-chamber, and when released, by properly operating the trigger, it travels under the recoil of its spring G to the rear end P of the air-chamber C, and drives with great force the air which is in said chamber C through the air-aperture *a* into the barrel-chamber *b*, where the dart or other charge is, and thereby, under a proper closing of the barrel, except at its muzzle M, sends out such dart or other proper charge with great force and swiftness from the muzzle of the barrel.

To set the plunger F for a discharge, draw the rod I outwardly through the nut-head *o*. This also draws the plunger in the same direction, and so continues to draw until the plunger is brought into position for the trigger L to catch it, (see Fig. 2,) when, removing the hand from the rod I, the recoil of its spring *g* throws it back to its first position—that is, the position shown in Fig. 1. N, the open breech end of the pistol-barrel, and O a plate, which closes the same. The barrel is charged at its open breech end, and when it is to be charged the plate O is removed and then replaced before the pistol is discharged. For convenience of adjusting the closing breech-plate O at the breech of the barrel, as above described, it is located on an arm, P, which is adapted at *q* to be swung on the frame so as to set opposite or away from the open breech. Q, a screw-bolt, which screws in the arm P and turns loosely in the breech-closing plate O, but with the plate the arm is interlocked by a rib, *r*, and groove *s*, as shown in Fig. 3, so that when the screw-bolt is turned in either direction the plate will travel with it. Thus the plate O can be set tightly and closely against the open breech, to prevent the escape of air

when the pistol is discharged, or it can be set away from the open breech for its further removal therefrom by swinging the arm which carries it.

The closing breech-plate O and its carrier-arm are interlocked by pins *u* and sockets *v*, which prevent the plate from turning with the screw-bolt without interfering with its travel against and away from the open breech. This interlock is essential, as no friction, rub, or wear takes place between the open breech and the breech-plate O in closing the breech-plate from time to time against the open breech. R, a stem, which passes loosely through center of screw-bolt Q, and lies by its flaring end *w* within a corresponding-shaped seat or recess, a^2, in the face S of the breech-plate O, which closes against the open breech of the barrel. This rod is for pushing the dart or other charge in the barrel E beyond the air-passage *a* after the breech-plate is set against the open breech, and this push of the dart, &c., is accomplished by simply pressing the pusher-stem R against its coiled spring b^2, which spring, on its recoil, brings said pusher back to its position within the breech-plate O, where obviously it is no obstruction to the course of the air from the air-chamber C to the barrel-chamber *b*.

The spring *g* on rod I for setting plunger F can be dispensed with, but it is preferable to use it, as said rod with it, by its recoil, will be thrown back automatically. The construction and connection of the rod I and air-plunger F, herein described, secure a closed and solid driving-face to the air-plunger, and leave no joints in the air-chamber for the air to waste itself as the plunger travels to discharge the pistol; and, again, as the coiled spring for the plunger lies between the plunger F and the end of the casing K, through which plays the setting or cocking rod, and as such casing makes the forward end of the air-chamber C, obviously when the spring is removed by unscrewing said casing from the chamber C, the coiled spring is held against additional extension, which enables it to be returned with facility and ease. *y*, a pin attached to and projecting from the arm P, and serving as a stop to the movement of the arm P by the length of the slot *x*, in which the pin *y* plays in handle D.

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

1. In combination with the swinging arm P, a spring-returned pusher-stem, for adjusting the dart in position, substantially as described.

2. In combination with the swinging arm P, the movable breech-block O and the spring-returned pusher-stem R, substantially as described.

3. In combination with the swinging arm P, the movable breech-block O, arranged to interlock therewith by pins *u* and sockets *v*, substantially as specified.

4. In combination with the barrel, air-chamber, and setting-rod I, the additional casing K, constructed and arranged to operate substantially as described.

5. In combination with the barrel, air-chamber, and spring-impelled plunger, the setting-rod I, with its spring *g* and tube *j*, all arranged to operate substantially as described.

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