H. M. QUACKENBUSH.

SPRING AIR-GUN.

No. 188,028. Patented March 6, 1877.

Fig: 1.

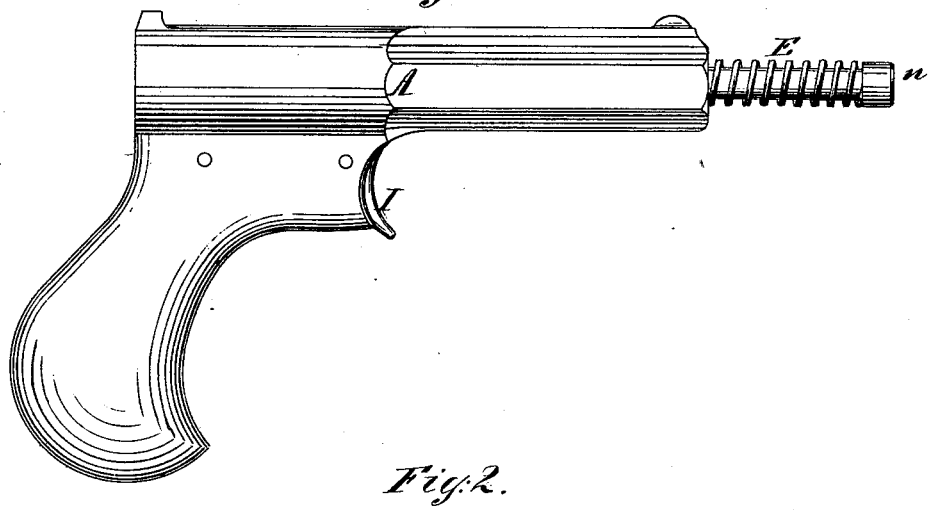


Fig: 2.

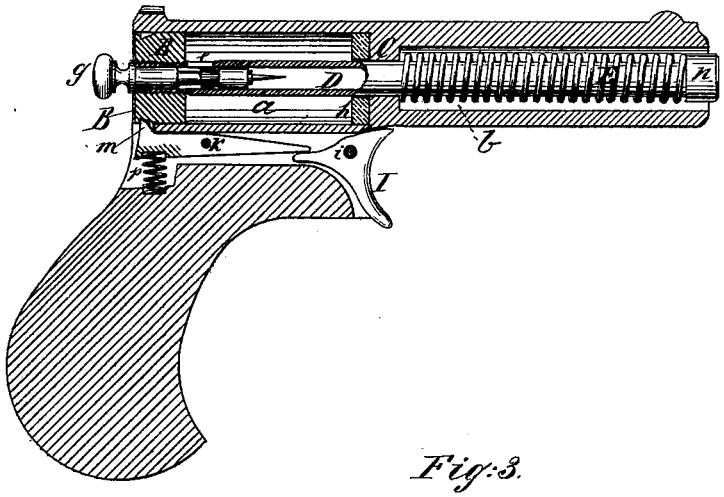
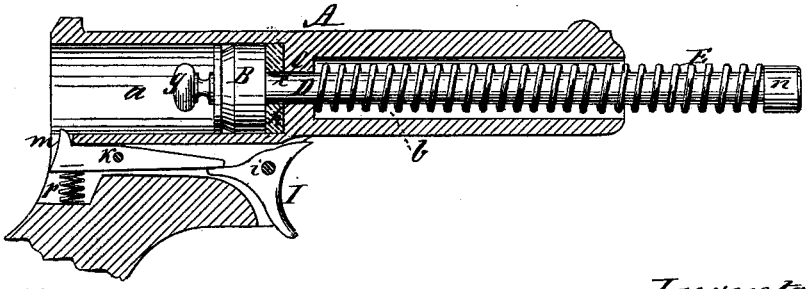


Fig: 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY M. QUACKENBUSH, OF HERKIMER, NEW YORK.

IMPROVEMENT IN SPRING AIR-GUNS.

Specification forming part of Letters Patent No. **188,028**, dated March 6, 1877; application filed September 9, 1876.

To all whom it may concern:

Be it known that I, HENRY M. QUACKENBUSH, of Herkimer, county of Herkimer and State of New York, have invented a new and useful Improvement in Spring Air Guns or Pistols; and I 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, in which—

Figure 1 is a side view of a pistol embodying my invention. Fig. 2 is a longitudinal vertical section of the same, showing the position of the several parts when loaded and cocked. Fig. 3 is a sectional view, showing the position of the parts after the projectile has been discharged.

This invention relates to air guns or pistols in which a spring-impelled plunger is arranged to operate within a chamber and compress the confined air therein, which serves to expel a dart or projectile from a barrel communicating with said chamber.

My invention consists in a novel arrangement of the spring relative to the plunger, and in the adaptation of the several parts thereto.

Heretofore, in this class of devices, the spring which actuates the plunger has been directly connected thereto in the same chamber, and arranged to follow the plunger, when distended.

In my invention this spring is arranged forward of the plunger, while each has a forward movement when acting, to compress the air and expel the projectile, causing the plunger to follow the spring. The spring is also placed in a separate chamber forward of the plunger, and acts indirectly thereon through connecting mechanism.

In the drawing, A represents a cylinder, its exterior conforming to the barrel of an ordinary pistol, and its interior constructed to form two chambers, *a* and *b*, separated by the partition *c*. The rear chamber, *a*, contains the sliding plunger B, secured upon the rear end of the barrel D, which extends through the plunger, and is adapted to receive the dart or projectile. The barrel D is extended forward through the partition *c* and chamber *b*, and is provided with a removable head, *n*, upon its forward end, and also with an aperture, *e*, directly forward of the plunger, forming a communication with the chamber *a*. A removable plug, *g*, which may be made of wood, is fitted to close the rear end of the barrel, and is of sufficient length to push the inserted projectile forward of the aperture *e*. The forward chamber *b* contains the actuating-spring E, which is coiled around the sliding barrel D, and is compressed between the partition *c* and head *n*; but I do not confine myself to this particular construction in securing the action and relative arrangement of the spring and plunger. A flexible washer, *h*, is inserted within the chamber *a*, against the partition *c*, as shown, to receive the impact of the plunger and prevent a leakage of air around the barrel. I represents the trigger, pivoted at *i*, and bearing upon the under side of the pivoted sear *k*. This sear *k* is extended to the rear end of the chamber *a*, and is provided with a projection, *m*, that engages with a notch, *x*, in the periphery of the plunger, and is retained therein by means of a spring, *p*.

The method of using this pistol is as follows: The head *n*, or forward end of the barrel, is placed against a fixed object—a wall or floor, for example—and pushed inwardly by bearing upon the stock, thereby contracting the spring E within the chamber *b*, and moving the barrel and connected plunger to the rear end of the chamber *a*, where it engages with, and is retained by, the sear *k*, as shown in Fig. 2.

This method of setting the spring enables a much stronger one to be employed than when the organization of the several parts requires a pulling action, as the weight of a person may be utilized in compressing it.

The plug *g* is removed from the rear end of the barrel, and a dart or projectile inserted, and in replacing the plug the projectile is pushed forward of the aperture *e*, and the device is ready for discharging.

By pulling the trigger the sear *k* is disengaged, and the plunger released. The spring E, acting upon the head *n*, moves the barrel and connected plunger suddenly forward, thereby compressing the confined air within

the chamber *a*, which acts upon the projectile through the aperture *e*, and expels it from the barrel.

This forward movement of the barrel and connected plunger, and the sudden arrest of the same by the partition *c*, or forward end of the chamber *a*, gives an impetus to the projectile which greatly increases its range and penetration.

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

1. In an air gun or pistol, the combination of a plunger and a connected actuating-spring, said spring being arranged forward of the plunger, and each having a forward movement when acting to compress the air and expel the projectile.

2. In an air gun or pistol, the combination of a plunger, a connected barrel, and an actuating-spring, each having a forward movement when acting to compress the air and expel the projectile, the plunger and spring being arranged in separate chambers, as set forth.

3. In an air gun or pistol, the combination of a plunger, a barrel connected thereto, and an actuating-spring.

4. The cylinder A, having chambers *a b*, in combination with the plunger B, barrel D, and spring E, constructed and arranged to operate substantially as shown.

5. The plunger B, connected to, and moving with, the barrel D, when acting to compress the air and expel the projectile, substantially as shown and described.

6. The spring-impelled plunger B, provided with the notch *x*, in combination with the pivoted sear *k*, spring *p*, and trigger I, substantially as shown.

HENRY M. QUACKENBUSH.

Witnesses:

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