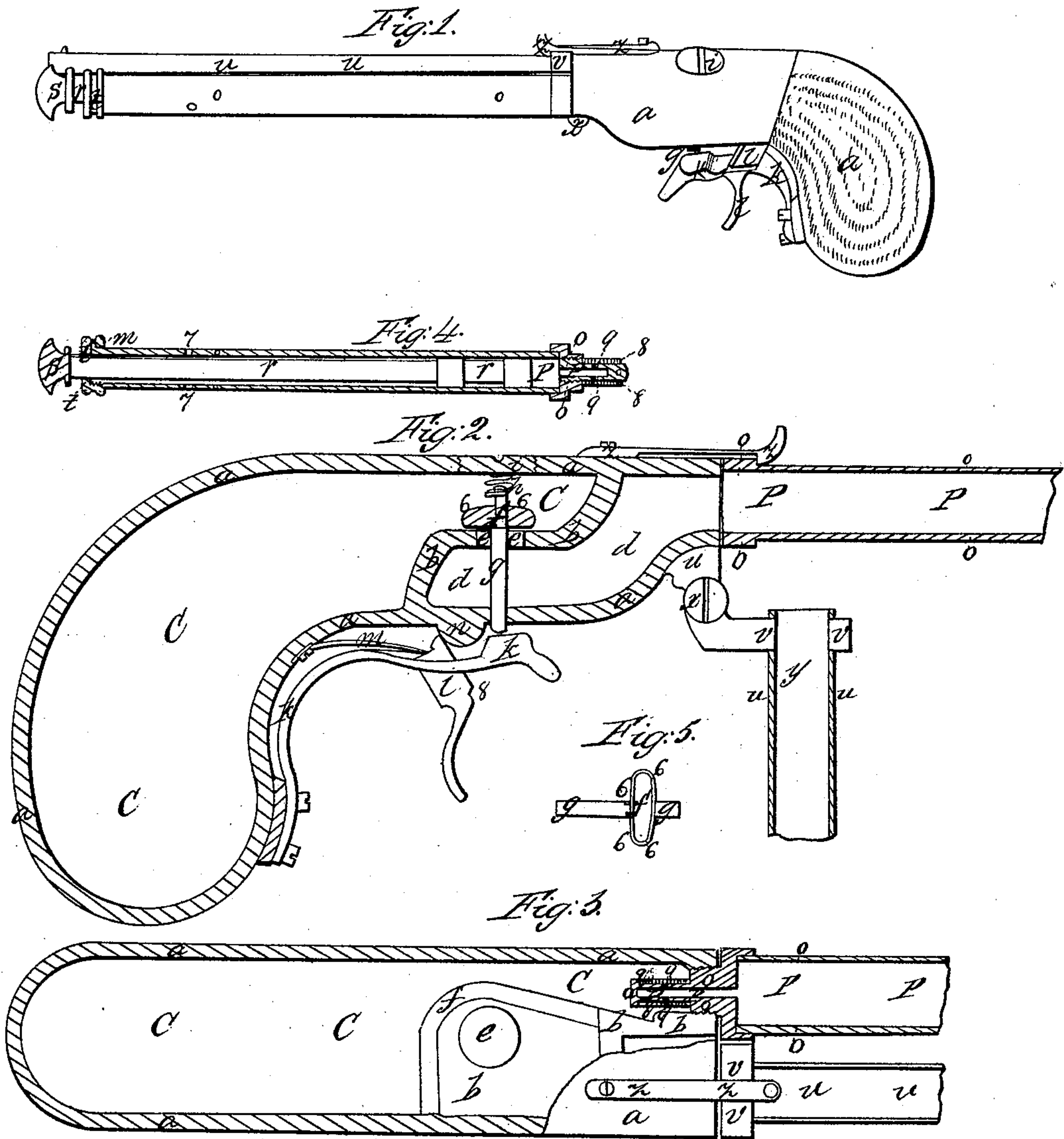


E. H. Hawley.

Air Gun.

N^o 90,749.

Patented Jun. 1, 1869.



Witnesses:
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E. H. HAWLEY, OF KALAMAZOO, MICHIGAN.

Letters Patent No. 90,749, dated June 1, 1869.

IMPROVEMENT IN AIR-GUNS AND PISTOLS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, E. H. HAWLEY, of Kalamazoo, in the county of Kalamazoo, in the State of Michigan, have invented a new and useful Improvement on Air-Pistols or Guns; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a half size perspective view;

Figure 2, a full size longitudinal elevation;

Figure 3, a full size transverse section;

Figure 4, half size transverse section of the air-pump; and

Figure 5, a full size sectional view of the puppet-valve.

The nature of my invention consists in making the reservoir of condensed air form the stock of the pistol or gun; in reloading but a portion, or a charge of the condensed air at a time, by the percussion of a spring, cock, or hammer on the puppet-valve, the air thus escaping forcing the projectile through the discharge-barrel; and in forming my pistol or gun-stock in such a manner that the condensing-pump and discharge-barrel shall have separate places of attachment, both firmly fixed, and in no manner interfering with the working of each other.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I construct my air-pistol or gun of metal, hard rubber, or any suitable material, either cast, swaged, or moulded, as the material may require, in any of the known forms of a double-barrel pistol or gun.

The stock *a a* is formed of sufficient strength to stand the pressure of the condensed air; it encloses the reservoir *c c* and the discharge-passage *d d*, which are separated by the diaphragm *b b*. (See figs. 2 and 3.)

The reservoir *c c* extends to that part of the stock *a a* to which the condensing air-pump *o o* is attached, and has free communication with it. (See fig. 3.)

The air-pump *o o*, where it is attached to the stock *a a*, is turned down, to form a shoulder. Between this shoulder and the end of the stock a leather washer is placed, to form a tight joint.

A male screw is cut on the end of the pump-barrel *o o*, corresponding to the lesser diameter of the shoulder, which fits a female screw in the end of the stock *a a*; beyond this screw it is still more turned down.

A small hole, *p p*, is bored from the inside of the pump-barrel *o o*, through the axis, and not quite to the end of this smallest part.

At half the length of this portion of the pump-barrel smaller holes *9 9* are bored from the outside, intersecting the bore through its axis *p p*.

The valve on the end of the pump-barrel *o o* is formed by stretching a small piece of rubber-tubing, *& &*, over this small part, covering the holes *9 9*.

At the end of this small part a knob is formed, to prevent the elastic tubing *& &* from slipping off. (See figs. 3 and 4.)

The condensing air-pump *o o* is fitted with a piston and rod, *r r*, terminating in the knob or handle *s*, and is prevented from being withdrawn by accident by the coupling *t*.

When a vacuum is formed in the interior, *p p*, of the pump-barrel, by pulling out the piston and rod the air rushes in, and fills it through the holes *7 7*. (See fig. 4.)

When the piston is forced in, the air before it raises the rubber valve *& &*, which prevents its returning again to the pump-barrel, passing into the reservoir *c c*. (See fig. 2.)

The condensed air is prevented from passing through the opening *e e*, in the diaphragm *b b*, into the discharge-passage *d d*, (see figs. 2 and 3,) by the puppet-valve *f*, fig. 2.

An opening is made through the outside of the stock *a a*, in which is fitted the screw-plug *i*, forming an air-tight joint. (See figs. 1 and 2.) Through this opening the puppet-valve *f*, fig. 2, is introduced, and can be repaired when necessary.

The puppet-valve *f* is kept in its place by the spiral spring *h*. Its stem *g* is prolonged, passing through the stock *a a*, opposite to the plug *i*.

When the spring, or hammer *k* is at rest, a space is left between it and the valve-stem *g*, allowing the valve *f* to rest on its seat.

A slot is cut through the spring, or hammer *k*, to allow the trigger *l* to pass through.

When the spring *k* is pulled open, the sere-spring *m* throws the trigger *l* forward until the notch *8* catches the spring *k*, and prevents its returning.

When the spring *k* is released, by pulling the trigger *l*, its momentum carries it beyond its place of rest, striking the valve-stem *g*, and raising the valve *f*, and allowing a charge of the condensed air to escape through the opening *e* into the air-passage *d d*, (see fig. 2,) and the discharge-barrel *u u*, figs. 1 and 3.

The valve, fig. 5, is formed of the metal disk *f*, through the centre of which, and firmly attached, the valve-stem *g* projects. The longer portion of the stem *g* is adjusted the proper length to receive the blow which raises it, and the shorter portion to keep the spiral spring *h*, fig. 2, in its place, and is adjusted the proper length to prevent the valve being raised too high by its coming in contact with the screw-plug *i*, fig. 2.

The disk *f*, fig. 5, may be formed with either a flat, bevel, or spherical face. It is covered with rubber by stretching a piece of elastic-rubber tubing, *6 6*, over it, whose inside diameter is equal to the diameter of the stem *g*, and its length is sufficient to touch the stem *g*, both sides of the disk *f* forming a valve that neither it nor its seat requires grinding.

The lug *w*, fig. 2, is formed on the stock *a a*, on which is formed half of the hinge *x*.

$v v$ is a ring, from which a lug corresponding to w , is formed, on which the other half of the hinge x is made.

The barrel $u u$ projects through the ring $v v$ a sufficient distance to hold a leather washer against the face of the ring $v v$, and prevent its being displaced. (See fig. 2.)

The barrel $u u$ is loaded by breaking it over, as seen in fig. 2, and inserting the projectile in its breech; it is then brought to the position shown in figs. 1 and 3, when the spring $z z$ slips over the ring $v v$, and secures it to its place.

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

1. The manner of covering the disk f of the puppet-valve with a skin of elastic rubber, for the purposes above described and set forth.

2. So arranging the puppet-valve f of an air-gun, in relation to the stock and barrel thereof, that the same may be operated by means of a spring, cock, or hammer, outside of and unenclosed by the stock, substantially as and for the purpose specified.

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Witnesses:

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