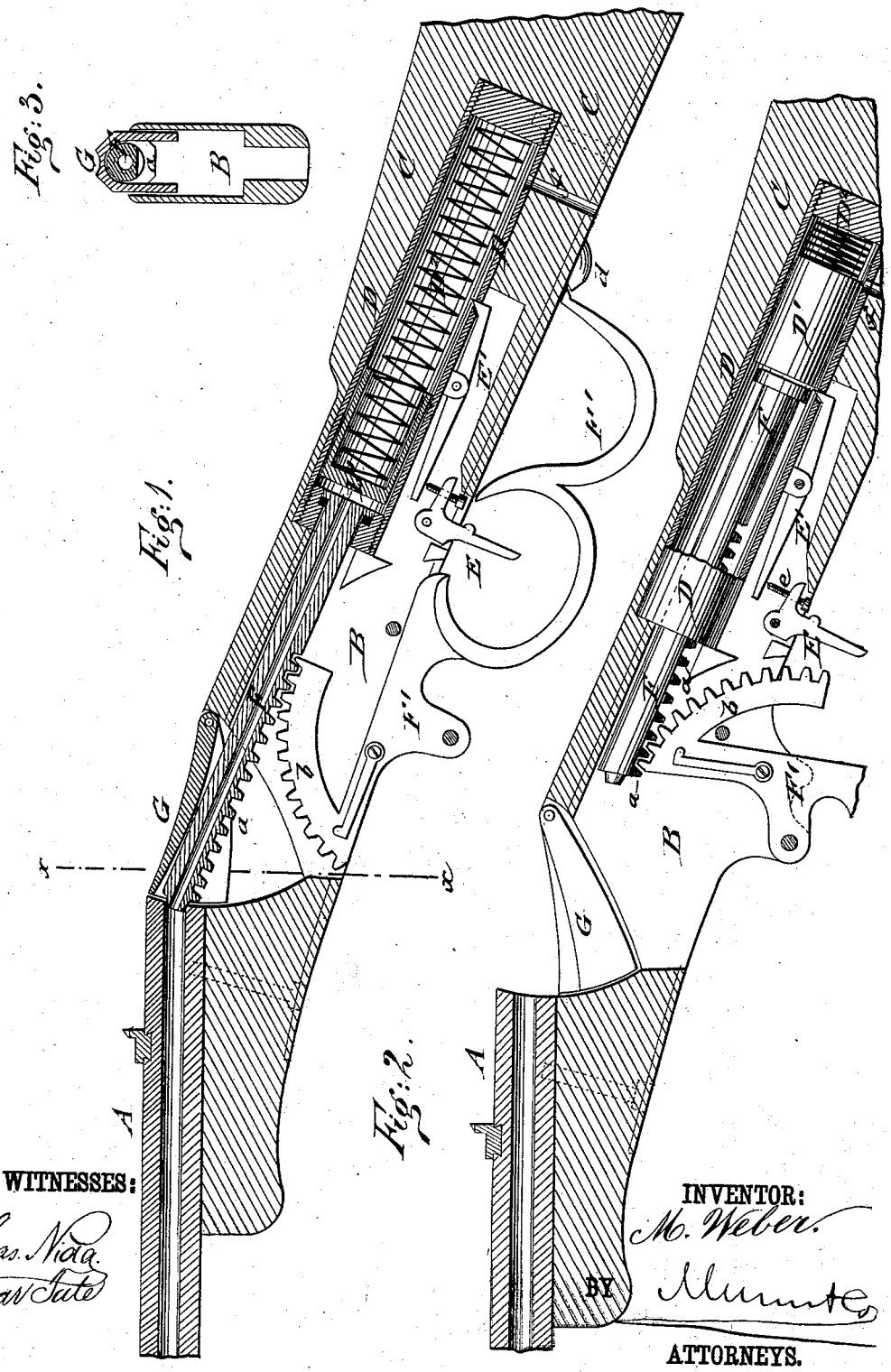
M. WEBER.

Spring Air-Gun.

No. 198,061. Patented Dec. 11, 1877.



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MICHAEL WEBER, OF ZURICH, SWITZERLAND.

IMPROVEMENT IN SPRING AIR-GUNS.

Specification forming part of Letters Patent No. **198,061**, dated December 11, 1877; application filed October 17, 1877.

To all whom it may concern:

Be it known that I, MICHAEL WEBER, of Zurich, Switzerland, have invented a new and Improved Air-Gun, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of my improved air-gun, shown in discharged position. Fig. 2 is a similar section, shown in open position to insert the ball or other missile; and Fig. 3 is a vertical transverse section of the same on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to an air-gun of improved construction, that may be charged in quick manner by means of a simple and easily-operated mechanism, and which throws the ball by the force of the compressed air to a considerable distance, so as to be adapted as a parlor-gun for target-shooting and other purposes.

The invention consists of an air-cylinder and sliding spring-piston arranged in the stock, and connected with the barrel by a sliding air-tube, which is carried back to set the spring-piston to the trigger-catch by a swinging lever and trigger-guard, that engages, by a toothed front segment, a bottom rack of the connecting air-tube. As soon as the air-tube is carried back, a hinged guard-shield is dropped below the breech of the barrel, and admits the insertion of a ball. The return of the lever carries the air-tube back to connect with the barrel, and raises the guard-shield, the gun being then ready to be discharged by pulling the trigger, which releases the spring-piston, and throws the ball by the compression of the air in the air-cylinder and tube.

In the drawings, A represents the barrel; B, a casing; C, the stock, and D the air-cylinder, which is arranged in the stock back of the trigger E. In the air-cylinder is placed a movable, but air-tight, piston, D^1, which is acted upon by a strong spiral spring, D^2.

The casing B extends from the air-cylinder to the barrel, and has at the inside a movable air-tube, F, that connects the air-cylinder and barrel, being guided in the tightly-packed opening of the air-cylinder, and made at the rear end, inside of the air-cylinder, of the disk shape. The front end is of tapering or conical shape, and fits into the breech of the barrel.

The under side of the air-tube F is in the shape of a rack, *a*, so as to be engaged by the toothed segment *b* of a swinging lever, F′, that forms also the trigger-guard, and is locked at the rear end by a suitable catch, *d*, when carried back to the stock C. A metallic band extends from the stock below frame B to barrel A, and is attached to air-cylinder stock and barrel by means of fastening-screws, so as to form a strong connection of these parts.

The trigger E is pivoted to this bottom band or piece, and provided with a regulating-screw, *e*, so as to form a so-called hair-trigger. The trigger E acts upon the front end of a fulcrumed lever, E′, the rear end of which forms a tapering catch, that projects through a small opening of the air-cylinder, slightly to the inside of the same.

The air-cylinder, back of the spring-piston, is connected with the atmosphere by a small air-tube, *f*, to admit air, and prevent the formation of a partial vacuum in the air-cylinder back of the piston, which would retard the action of the spring-piston.

When the operating-lever F′ is carried downward, the air-tube is pushed backward into the air-cylinder, carrying with it the spring-piston, until the latter is caught by the lever-catch E′.

As the air-tube is thus drawn back a hinged guard or shield, G, is pressed downward by a suitable spring, so as to clear the breech of the barrel, as shown in Fig. 2, and admit, by the concaved top surface of the shield, the convenient insertion of a ball or other missile into the breech of the barrel.

When the ball has been placed in the barrel, the lever F′ is carried back into the original position, the air-tube at the same time thrown forward into the breech of the barrel, and the shield raised above the breech, so that the gun is thus ready to be discharged. If the trigger is now pulled, the piston is released and thrown forward by its spring, so as to instantly compress the air in the air cylinder and tube, and throw thereby the ball with considerable force from the barrel.

The propelling force of the air-gun is in pro-

portion to the power of the spring of the piston and to the relative areas of the cross-sections of the air-cylinder and barrel.

The air-gun is easily charged in the manner and with about the same motions as required for most breech-loaders, and forms a strong and effective air-gun for target-shooting and sporting purposes in general.

I am aware of the existence of an air-pistol which is provided with a pneumatic piston immediately behind the barrel, operated by spring-power, for ejecting the dart or other missile from the barrel. The pneumatic piston is combined with a sliding cylinder, which is operated by a rack and pinion, and so constructed that when retracted it cocks the gun and opens the breech to receive the dart or missile, and when thrown forward again it closes the breech and leaves the gun ready to be discharged.

The above construction of parts is not designed to be employed in a gun which is to be fired from the shoulder, because it would be impossible to give the necessary inclination to the stock and operate the air-compressing and missile-ejecting devices in a proper manner. The breech-closing cylinder, pneumatic piston, and the springs employed in connection with the latter render the stock bulky and heavy, and make the pistol ill adapted for expeditious shooting.

In my invention I retain the external shape of the stock of a fire-arm, and do not enlarge the same, as in air-guns of the ordinary construction. The operating parts are all arranged within the stock, and are so distributed or arranged that the gun is made comparatively light, so that it can be easily handled and fired from the shoulder.

The essential feature of the invention is the tube for conducting air from the air-cylinder to the barrel, and closing the breech, said air-tube moving in an inclined path within the stock, and having its front end shaped to enter the breech of the barrel, and its rear end provided with a piston, which tightly closes the front end of the air-compressing cylinder when the gun is ready to be discharged.

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

1. In an air or spring gun, the combination of a sliding air-conducting tube or tubular bolt, having its front end shaped to enter the breech of the barrel, and provided with a rear head or piston and a bottom rack, with the barrel, the stock, the air-cylinder, the spring-propelled compressing-piston, the segmental rack and operating-lever, and a trigger device, all constructed and relatively arranged as herein set forth, for the purpose specified.

2. The combination of the air-cylinder D and spring-piston D′, pushed back by the movable air-tube F, with the lever-catch E′ and hair-trigger E, to set the spring-piston for the discharging of the gun, substantially as specified.

3. In an air-gun, the combination of the swinging shield or guard with the barrel, breech, and sliding air-tube, said shield being dropped below the breech when the air-tube is carried back, and raised by the return of the air-tube, as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand.

MICHAEL WEBER.

Witnesses:

HEINRICH PETER,
LOUIS DITTMEYER.