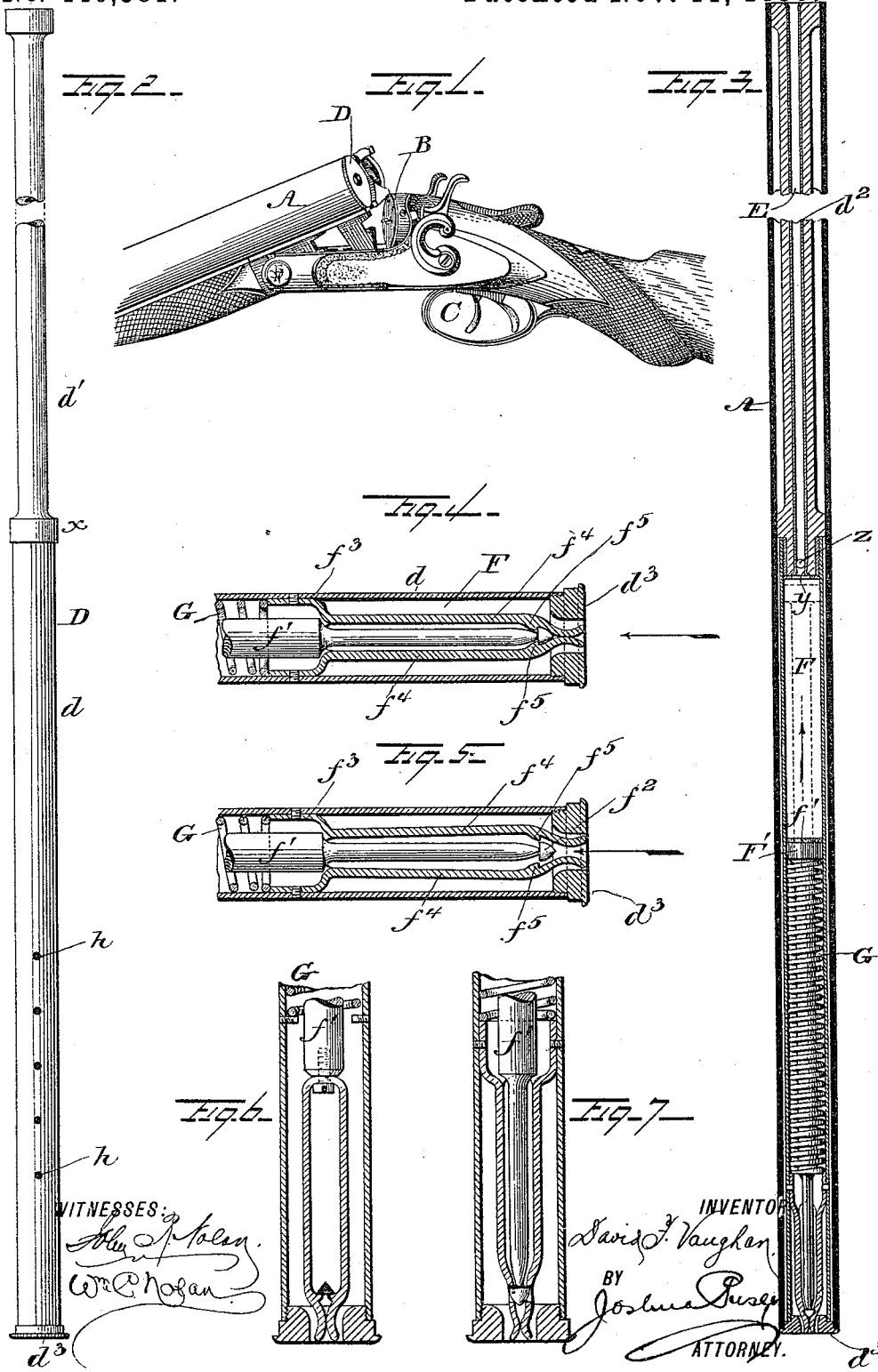


(No Model.)

D. F. VAUGHAN.
SPRING AIR GUN.

No. 440,381.

Patented Nov. 11, 1890.



WITNESSES:
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DAVID F. VAUGHAN, OF HADDONFIELD, NEW JERSEY.

SPRING AIR-GUN.

SPECIFICATION forming part of Letters Patent No. 440,381, dated November 11, 1890.

Application filed March 4, 1890. Serial No. 342,625. (No model.)

To all whom it may concern:

Be it known that I, DAVID F. VAUGHAN, a citizen of the United States, residing at Haddonfield, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Fire-Arms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a perspective view of a portion of an ordinary breech-loader provided with my invention. Fig. 2 is a side elevation of the supplemental barrel detached. Fig. 3 is a central vertical section through the same and a gun-barrel in which it is contained. Fig. 4 is a section through the clamping and releasing jaws and adjuncts, the head of the piston-rod being clutched thereby. Fig. 5 is a similar section, the jaws being expanded to release the piston-rod. Figs. 6 and 7 are sections of modifications hereinafter referred to.

The main object of this invention is to provide a gun-barrel in which compressed air shall be used as the projective force. It is more particularly designed as a supplemental barrel for breech-loading fire-arms, the construction being such that the projectile will be expelled from the barrel upon the snapping of the trigger in the usual manner.

The construction and operation of the invention will be hereinafter fully described, and the particular matter considered new will be pointed out in the claims.

Referring to the drawings, A, Fig. 1, represents the barrels, B the firing-pins, and C the trigger mechanism, of an ordinary double-barrel breech-loading gun.

Confined within one of the barrels A is my improved supplemental barrel D, which is of the following construction: d d' are two tubes which are screwed together or otherwise securely jointed at x . The bore of the tube d' is considerably smaller than that of the tube d , and its inner end is contracted or shouldered, as seen at y . If, as in this instance, the tube d' be of wood, its bore should be provided with a protective metal lining d^2 . This bore constitutes the projectile-receiving chamber E, while the communicating bore of the tube d forms an air-chamber F. Screwed on the outer end of the tube d is a centrally-

perforated cap d^3 , which is provided with an external surrounding flange. This flange, when the supplemental barrel is inserted within the gun-barrel, takes against the end of the latter, similarly with the flanged head of a cartridge, and likewise keeps the supplemental barrel in place.

Within the chamber F is contained a piston F' , which is faced with leather or other suitable flexible material. The latter is designed to bear against the walls of the chamber, and thus prevent the escape of air around the edge of the piston. Extending centrally from the piston is a rod f'' , on whose free end is formed a head or catch f^2 . Near the outer end of the chamber F is secured a ring f^3 , from which outwardly projects two spring fingers or jaws f^4 . The outer ends of these jaws are normally in contact and are flush or substantially flush with the exterior face of the cap d^3 , through which they freely extend. The jaws f^4 are provided with opposite shoulders or offsets f^5 , which are so arranged as to receive and grasp the head or catch on the piston-rod when the latter is pushed between the jaws, and thus to hold the piston against the elastic action of a strong compression-spring G, which is interposed between the piston and the inner or connected ends of said jaws, as clearly shown.

The operation is as follows: Assume the piston to be retracted, as above described, and the gun-barrel to be locked in operative position. A grain of shot Z, Fig. 3, about equal in diameter to that of the chamber E, is dropped into the muzzle of the latter. It is checked at the mouth of the air-chamber by means of the stop y . This shot constitutes the charge. The hammer is then retracted in the usual way, and upon being snapped it will likewise strike the head of the firing-pin. The point of the latter will thereupon forcibly strike between and spread open the opposed ends of the spring-jaws f^4 , and thus withdraw the shoulders f^5 from the head of the piston-rod, whereupon the compressed spring, being released, will expand and forcibly drive the piston forward. This piston will compress the air between the same and the chamber E, and the projective force of the condensed air will suddenly expel the

shot from said chamber. This action of the air upon the charge is the same as in the well-known air-gun. To reset the mechanism for a succeeding action, the piston is pushed back by means of an ordinary ram-rod until the head on the end of the piston-rod is grasped by the spring-jaws, as before, whereupon the rammer is withdrawn and a charge inserted in the projectile-chamber. The tube *d*, toward its near or outer end, is provided with a series of vent-holes *h*, through which the air in the rear of the piston is expressed when the latter is retracted. The external diameter of this tube is somewhat less than the bore of the main barrel, so that an intermediate space will be formed for the reception of this expressed air. The plain periphery of the cap *d*^s fits snugly within the end of the bore, as seen. The supplemental barrel is removed from the gun-barrel in about the same way that a discharged cartridge is extracted.

Instead of securing the clamping and releasing jaws to and within the chamber *F* and providing the piston-rod with a head adapted to be clutched by these jaws under the circumstances mentioned, I may sometimes reverse the order of the arrangement of these elements, as illustrated in Fig. 6—that is to say, the jaws may be connected with the piston-rod and the head be secured near the end of the chamber in the path of these jaws, so that when the piston is retracted the jaws will pass over and catch upon this fixed head. In this construction the effect of the firing-pin upon the jaws will be the same as in the former arrangement.

By reference to Fig. 7 it will be noticed that the spring-jaws are provided with perforations or notches in lieu of the spring-shoulders. When the piston-rod is retracted, the head thereon will enter these perforations or notches and be locked thereby. As in the other constructions described, the spreading apart of the jaws will release the piston.

My invention provides a convenient means whereby a sportsman may be enabled to become accustomed to the handling of his gun without considerable expenditure for ammunition. Being noiseless in its action, a gun equipped with my supplemental barrel will be particularly adapted for home target practice. In fact it may be used in lieu of the ordinary air-gun in any case.

I claim—

1. The combination, with the barrel, the trigger mechanism, and the firing-pin of a breech-loading gun, of a supplemental barrel adapted to be confined within said gun-bar-

rel, and comprising an air-chamber, a projectile-chamber communicating therewith, a piston working within said air-chamber, and a compression-spring adapted to impel said piston-forward, together with clamping and releasing jaws adapted normally to lock the piston in retracted position, whereby the action of the firing-pin upon said jaws will open the same, and thus release the piston, substantially as described.

2. The combination, with the barrel, the trigger mechanism, and the firing-pin of a breech-loading gun, of a supplemental barrel adapted to be confined within said gun-barrel, and comprising an air-chamber, a projectile-chamber communicating with said air-chamber and of less bore than the latter, a shoulder or stop between said chambers, a piston working within the air-chamber, and a compression-spring adapted to impel said piston toward the projectile-chamber, together with clamping and releasing jaws adapted normally to lock the piston in retracted position, whereby the action of the firing-pin upon said jaws will open the same, and thus release the piston, substantially as described.

3. The herein-described supplemental barrel for guns, consisting in the combination of an air-chamber, a projectile-chamber communicating with said air-chamber and of less bore than the latter, a piston working within said air-chamber, the rod extending therefrom, provided with the head or catch, the spring acting against said piston to expel the same, the spring-jaws secured within the air-chamber, extending through an opening in the head thereof, and adapted normally to engage said head or catch, and thus lock the piston in retracted position, substantially as described.

4. A supplemental gun-barrel comprising two detachable sections, in one of which the air-chamber is formed and in the other the projectile-chamber, said air-chamber being of greater relative bore than the latter chamber and provided with the flanged centrally-perforated screw-cap, the piston adapted to work within said air-chamber, the piston-rod, the compression-spring, and the clamping and releasing jaws, all combined, constructed, and adapted to operate substantially as described.

In testimony whereof I have hereunto affixed my signature this 17th day of February, A. D. 1890.

DANIEL F. VAUGHAN.

Witnesses:

JOHN R. NOLAN,
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