

No. 765,270.

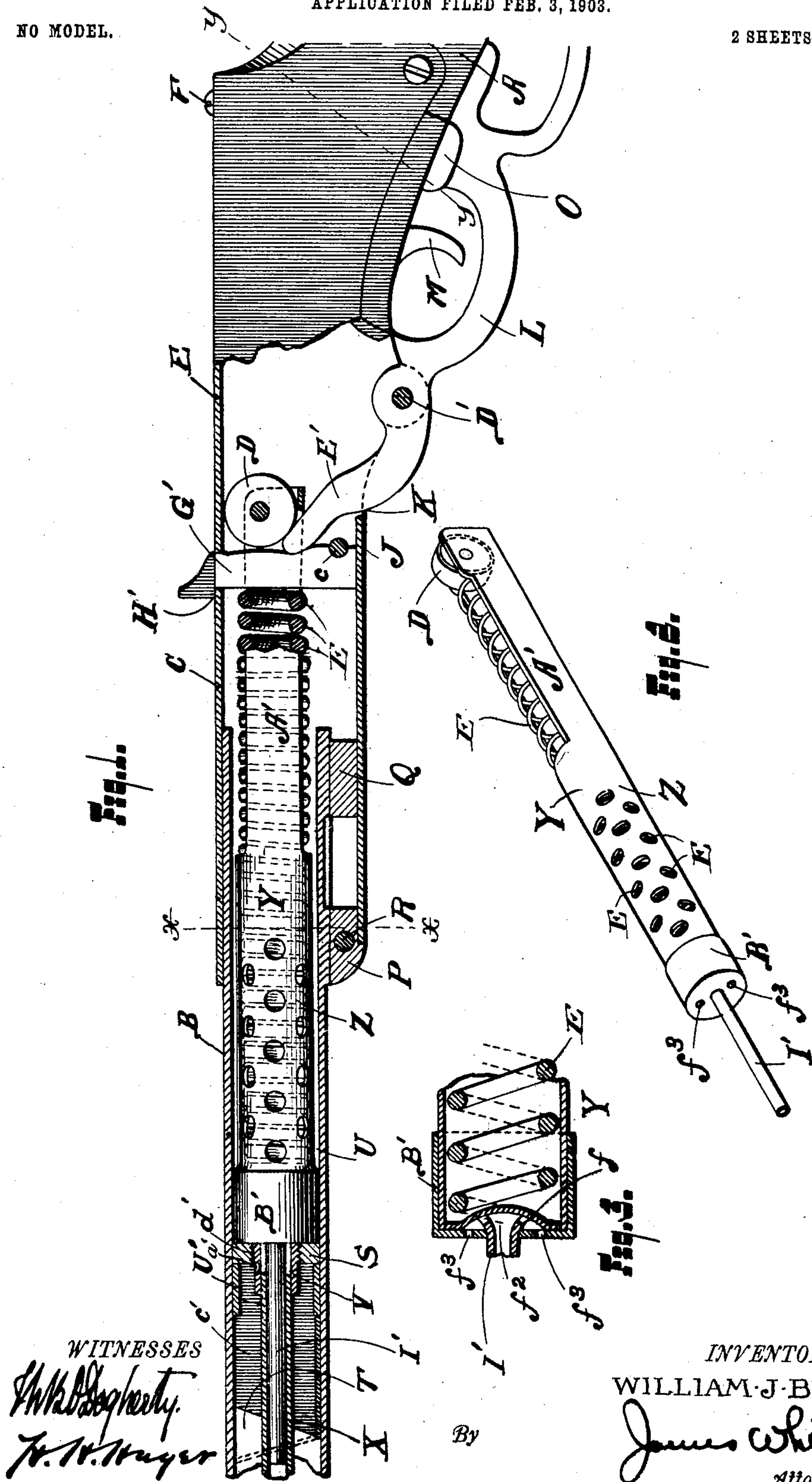
PATENTED JULY 19, 1904.

W. J. BURROWS.  
AIR GUN.

APPLICATION FILED FEB. 3, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES

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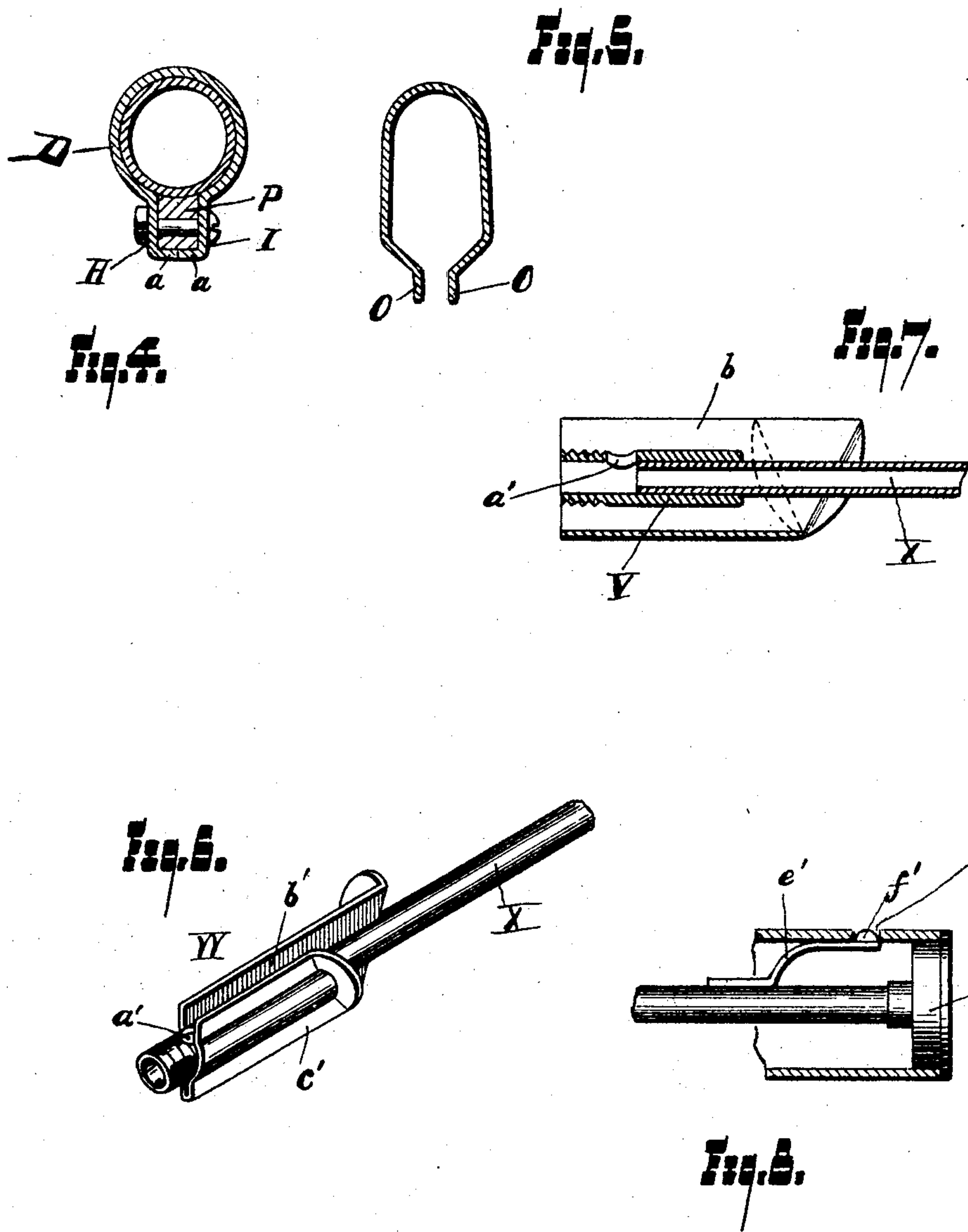
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WITNESSES

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# UNITED STATES PATENT OFFICE.

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## AIR-GUN.

SPECIFICATION forming part of Letters Patent No. 765,270, dated July 19, 1904.

Application filed February 3, 1903. Serial No. 141,680. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. BURROWS, a citizen of the United States, residing at Plymouth, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Air-Guns, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates particularly to the type of air-guns wherein a spring-actuated piston is employed to compress the air in a suitable chamber against the projectile to be discharged; and the invention consists in the novel and simple construction of the expelling mechanism, in a combined trigger-casing and barrel-butt, and in various other details of construction, as will be more fully hereinafter set forth and illustrated.

In the drawings, Figure 1 is a longitudinal section, partly in elevation, through an air-gun embodying my invention. Fig. 2 is a detail perspective view of the spring-actuated plunger. Fig. 3 is an enlarged sectional view through the plunger-head. Figs. 4 and 5 are sectional views taken on lines *xx* and *yy* of Fig. 1, respectively. Fig. 6 is a sectional perspective view of the true barrel. Fig. 7 is a sectional elevation thereof, and Fig. 8 is a detail sectional view showing the retaining means for the true barrel.

In the drawings thus briefly described the reference-letter A designates the usual stock of the gun, B the false barrel, and C a housing secured to the stock and barrel, forming a rigid connection therebetween. In construction the housing is formed of a single sheet of metal bent longitudinally and shaped to form a combined barrel-butt and trigger-casing. The stock is fitted within the casing-section in the manner indicated and is secured thereto in any suitable manner, preferably by screws F. The front end of the housing comprises a hollow cylindrical section D, adapted to fit snugly over the rear end of the false barrel, and is provided with the depending flanges H and I. The edges of the housing are turned over and meet, so as to form the bottom section J, which is cut away or slotted, as indicated at K, to

receive the operating-lever L and trigger M. Rearwardly of the trigger ears O depend from the housing from the opposite sides thereof, being spaced, as indicated in Fig. 5, and forming a spring lock or holder for the lever. (Shown in Fig. 1.)

The false barrel B carries at its rear end lugs P and Q, which when the barrel end is fitted within the front section of the housing extend between the flanges H and I. The barrel is held in place by a screw R, extending through the flanges and the lug P.

S represents the usual block within the false barrel, dividing the interior of the latter into the magazine-chamber T and an air-compression chamber U.

U' is a thimble within the false barrel which holds the plug from displacement.

The block described is centrally apertured to receive the rear end of the true or shooting barrel X. The diameter of this barrel is slightly less than the diameter of the bullet or shot to be discharged, and a short sleeve V is fitted over its extreme end, so that the latter will serve as a containing device for the projectiles, preventing their escape from the barrel except upon the firing of the gun. A suitable feed-opening *a'* is formed in the sleeve described rearwardly of the barrel end, and a guide W, consisting of plates *b' c'*, secured thereto in any suitable manner, as shown, serves to feed the projectiles to said opening. The extreme rear end of the sleeve is threaded to engage the thread *d'* about the plug-aperture.

To prevent the true barrel from turning or rotating after its insertion within the false barrel, a spring-arm *e'* is provided at its front end carrying a lug *f'*, which is adapted to engage the filling-opening *g'* of the false barrel. The means described, as will be obvious, serve, in addition to preventing rotation of the true barrel, the function of closing the filling-opening, preventing the projectiles from passing out of the magazine. The usual apertured cap *h'* is arranged upon the extreme front end of the true barrel and closes the front end of the false barrel.



Y is the plunger, arranged for reciprocation within the false barrel and housing, as shown in Fig. 1. In construction it comprises a hollow body Z, its peripheral wall being apertured so as to reduce its weight and slotted upon its opposite sides, forming at one end parallel arms A'.

B' is the plunger-head in the form of a cap fitting tightly over the front end of the body. The actuating-spring for the plunger I have shown as housed within the latter and arranged to be removed with the plunger, which is detachable from both the false barrel and housing. Preferably a coil-spring E is employed extending rearwardly from the plunger-head, against which it abuts in proximity to the ends of the parallel arms. The lever L, previously referred to, is pivoted at D<sup>2</sup> to the housing and carries a finger E', which engages the roller D', as shown. A stationary abutment is provided for the spring at the end opposite the plunger-head, so that upon the rearward movement of the plunger through the agency of the lever the spring will be compressed. This abutment I have shown as formed by the rear sight G' for the barrel. The sight-block projects through an opening H' in the housing and passes, preferably, between the arms A' of the plunger intermediate of the spring and antifriction-bearing. It is held in place by the plunger-spring and a screw c, extending transversely through the housing, and is detachable to permit the withdrawal of the plunger.

The means for retaining the plunger against the tension of its spring and the connections between said means and the trigger are not shown herein, as they form no part of the present invention.

I preferably employ a projectile-starting rod I', carried by the plunger and having a sliding engagement with the true barrel. The rod is made hollow in the customary manner and is inserted within a central aperture formed within the cap forming the plunger-head, the inserted end of the rod being flared or flanged, as shown in Fig. 3. An imperforate cap f is arranged within the plunger inclosing the flanged portion of the rod and having its periphery soldered or otherwise secured to the head or cap. As thus constructed a chamber is formed within the plunger-head, which receives the air through ports f', formed in the cap, the air being discharged from the chamber through openings f'', which lead to the interior of the rod I'. It will be observed from the construction of the starting-rod described and its connections that a rigid structure is produced, and by forming a chamber or inlet for the air within the plunger-head in the manner set forth any cushioning effect between the plunger-head and plug is eliminated, which is a desirable feature, as an air-cushion when formed tends

to reduce the force or impact of the plunger and is therefore detrimental to the action of the gun.

The operation of the gun is well known and needs but little description. The projectiles are stored within the magazine T and by tipping up the gun are fed one at a time through the feed-opening into the true barrel. Upon the discharge of the gun air is compressed behind the projectile and is discharged in its compressed state through the starting-rod and true barrel.

It is to be noticed from the description of my invention that the parts of the gun are so assembled that they may be quickly and readily detached one from another when desired for the purpose of repair or replacement. By detaching the operating-lever L, withdrawing the screw R, and detaching the rear sight G' the false barrel, with the expelling means, may be readily removed from the housing. The plunger, with its spring and starting-rod, can then be subsequently removed as an entirety from the false barrel. Thus access may be conveniently and quickly had to any part of the gun, and the construction of the latter is materially simplified. Attention is also directed to the fact that by securing the projectile-guide to the true barrel in the manner set forth it is possible in case the guide becomes clogged to free the same without the necessity of taking the gun entirely apart, it being merely necessary to extract the true barrel, which can be readily and easily accomplished.

What I claim as my invention is—

1. In an air-gun, the combination with a false barrel, of the stock, and a housing, formed of a hollow cylindrical piece of sheet metal, connecting the barrel and stock, said housing also constituting the trigger-casing.

2. In an air-gun, the combination with a false barrel, of the stock, and a housing, made of a single piece of sheet metal inclosing the adjoining ends of the barrel and stock and forming a rigid connection therebetween.

3. In an air-gun, the combination with the housing made of a single piece of sheet metal, of the stock secured within the casing and inclosed thereby, and a false barrel fitting snugly within the inner section of the housing and having detachable connections therewith.

4. In an air-gun, the combination with a false barrel, of a spring-actuated plunger therein, the stock, a casing connecting the barrel and stock, a trigger in said casing, a lever pivoted to the trigger-casing for operating the plunger and inclosing the adjoining ends thereof, and a spring-holder upon and integral with said trigger-casing for the lever.

5. In an air-gun, the combination with a false barrel, of a spring-actuated plunger therein, the stock, an elongated cylindrical open-ended housing made of a single piece of sheet metal inclosing the adjoining ends of the



barrel and stock and forming a rigid connection therebetween, an operating-lever for the plunger pivoted within the housing, a trigger in said casing, and spaced spring ears or lugs integral with and depending from said housing rearwardly of the lever-pivot adapted to engage and retain the lever.

6. In a spring air-gun, the combination with an open-ended housing formed from a single piece of sheet metal, of a stock fitted within one end thereof and inclosed thereby, a false barrel detachably arranged within the other end, a trigger mounted in the housing, a plunger mounted within the barrel and housing and detachable therefrom, and an actuating-spring for the plunger carried by and detachable with the latter.

7. In a spring air-gun, the combination with the false barrel, of a plunger detachably arranged therein and apertured throughout its length to reduce its weight, an actuating-spring housed within the plunger, and means for operating said plunger against the tension of the spring.

8. In a spring air-gun, the combination with the false barrel, of a plunger therein, said plunger being slotted to form arm extensions, a spring within and having a bearing at one end against the plunger, a stationary abutment for the other end of said spring adapted to rest between the arm extensions of the plunger, and a lever for actuating the plunger to compress the spring.

9. In an air-gun, the combination with a false barrel, of the stock, and a housing made of a single elongated cylindrical piece of sheet metal inclosing the adjoining ends of the barrel and stock and forming a rigid connection therebetween, said housing also constituting the trigger-casing.

10. In an air-gun, a plunger slotted to form arm extensions, a lever for operating the plunger, a spring within said plunger, and an antifriction-bearing resting between said arm extensions for the lever.

11. In a spring air-gun, a plunger slotted to form arm extensions, a lever for operating the plunger, a spring within said plunger, and an antifriction-bearing for the lever and plunger, said bearing being mounted upon the arm extensions of the plunger.

12. In a spring air-gun, the combination with a housing formed from a single piece of metal constituting the connection between the barrel and stock, said housing being also the trigger-casing, a plunger working within the barrel and housing and having arm extensions, a spring within the plunger, and a rolling bearing upon the arm extensions of the plunger engaging the housing.

13. In a spring air-gun, the combination with the stock, of a false barrel, a housing connecting the barrel and stock, a plunger working within the barrel and housing, a roller carried by and a coiled spring housed within the plunger, a rear sight for the barrel extending within the housing intermediate of the roller and spring and forming a stationary abutment for the latter, and a lever for operating the plunger to compress the spring.

14. In a spring air-gun, the combination with the stock, of a false barrel, a housing connecting the barrel and stock, a plunger working within the barrel and housing, said plunger being slotted to form arm extensions, a roller carried by the arms, and a coiled spring housed within the plunger, a detachable rear sight for the barrel projecting through the housing and plunger intermediate of the roller and spring and adapted to rest between the arm extensions of the plunger, and a lever for operating the plunger against the tension of the spring.

15. In an air-gun, a plunger having elongated extensions, a lever for operating the plunger, and an antifriction-bearing for the lever, mounted upon the extensions of the plunger.

16. In an air-gun, a spring-actuated plunger having elongated extensions, a lever for operating the plunger and an antifriction-bearing for the plunger and lever, said bearing being mounted between the extensions of the plunger.

17. In an air-gun, the combination with a false barrel, of a plunger working therein comprising a body and an apertured end in the form of a cap covering the body end, a starting-rod extending within the plunger-head the rearward projecting end thereof tapering outwardly and apertured at said tapered portion, and an inwardly-curved cap within the plunger covering and bearing against the rod end and secured to the plunger-head.

18. In an air-gun, the combination with the false barrel, of the true barrel detachably arranged therein and provided with a feed-opening, a guide H having plates *b'* and *c'*, said guide being carried by and detachable with the true barrel, for conducting the projectiles to the opening, and a spring member on said true barrel forming a closure for the feed-opening of the false barrel and a retaining means for the true barrel.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM J. BURROWS.

Witnesses:

G. U. LATOUR,

M. B. O'DOHERTY.