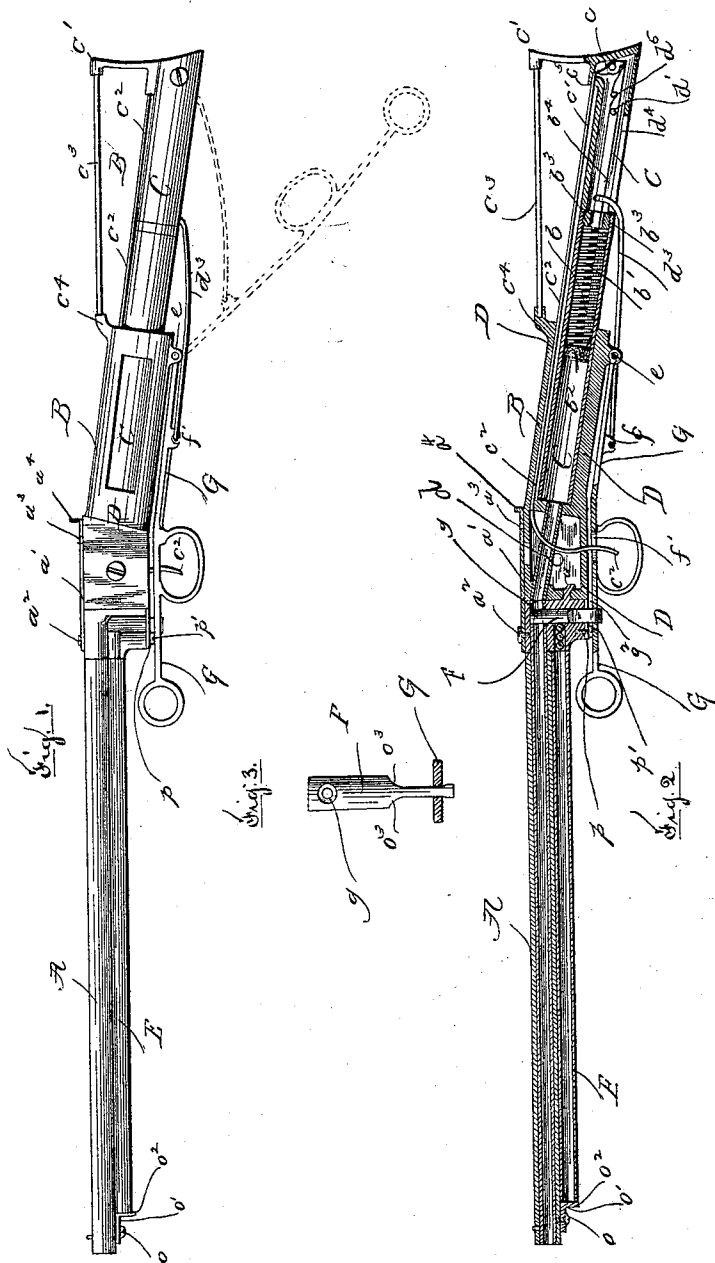


(No Model.)

R. ALDRICH.
AIR GUN.

No. 459,732.

Patented Sept. 22, 1891.



Witnesses
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UNITED STATES PATENT OFFICE.

ROBERT ALDRICH, OF BLACKSTONE, ASSIGNOR OF TWO-THIRDS TO JAMES J. WARREN AND JOHN M. WARREN, BOTH OF WORCESTER, MASSACHUSETTS.

AIR-GUN.

SPECIFICATION forming part of Letters Patent No. 459,732, dated September 22, 1891.

Application filed August 15, 1890. Serial No. 362,137. (No model.)

To all whom it may concern:

Be it known that I, ROBERT ALDRICH, a citizen of the United States, residing at Blackstone, in the county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Air-Guns, of which the following is a specification.

My invention relates to improvements in air-guns that are provided with magazines for repeating purposes and which discharge the projectile by means of compressed air forced into the barrel by means of a piston operated by a spring; and the objects of my improvements are, first, to provide a ready and sure means of loading the gun from the magazine, so that great rapidity in repeating may be secured, if desired, as well as convenience in loading; second, that accuracy in the shooting qualities of the gun may be attained without increasing the length of the barrel; third, to provide for lightness, durability, strength, and economy in the manufacture of the gun. I attain these objects by certain novel methods of construction and by means of peculiar arrangements of the parts.

In the drawings that accompany this specification and make a part hereof, Figure 1 represents a side view of the air-gun in its complete form. Fig. 2 is a longitudinal sectional view showing the arrangements of construction. Fig. 3 is a detail of the loading-pin with a small section of the guard near the bottom.

In the drawings like letters refer to similar parts.

The gun is primarily made up of the barrel A and the stock B, which are made separable and removable and are connected when in use by means of the hooked tongue a , which is an old device, and the spring a' , secured to the barrel A by the screw a^2 and closes down snugly over the pin a^3 , which holds it in position rigidly in alignment with the stock. The end over the stock is conveniently turned up and grooved for a sight a^4 .

The stock of the gun is made of a cylinder C and the grip and lock section D. The cylinder is inserted in the section D and contains the spring air-compressor b , which is

made in the usual manner—to wit, a helical spring b' around the forward end of a piston-rod b^1 and between the piston-head b^2 and a rigid collar b^3 . The cylinder also contains the releasing-latch c , pivoted in the toe of the stock, which is released by the pressure of the trigger-rod c^2 when the end at the lock is pulled by the marksman. The lower end of the cylinder is projected upward in some convenient form, so as to make a suitable shoulder-piece, from the heel C' of which a rod c^3 may be inserted and extended to an ear c^4 on the grip D to secure rigidity of the gun. Through the lock-section D a connection is made by a hollow cylinder or other conduit d from the cylinder C to the rear end of the barrel, through which, when the gun is discharged, the air is forced by the action of the piston b to the barrel, expelling the projectile, if loaded. Through the section D passes the trigger-rod c^2 , which also in the embodiment of my invention passes over and along the cylinder C and through an aperture c^5 reaches the upper end of the releasing-latch c .

Underneath the stock and pivoted to it at e is a lever G, used in loading the gun. To this lever is attached at f the rod d^3 , with its other end bearing upon the piston-rod b^1 and sliding along a slot d^4 in the lower part of the cylinder C. Through the piston-rod b^1 is a pin d' , which, when the gun is discharged and the lever G is in its normal position up under the stock and close to it, bears against the end of the rod d^3 . As the connecting-rod d^3 is forced backward by the lowering of the lever G to the position indicated in the dotted lines in Fig. 1, the resistance of the pin d' against the end of the rod d^3 forces the piston-rod b^1 backward, compressing the spring b till the notch near the end of the piston-rod engages the pin d^5 , which is fast to the side of the cylinder and holds the piston-rod fast. The upper side of the lower end of the piston-rod is made inclined, and as the end of the piston-rod is forced back and just before the notch engages the detaining-pin d^5 it bears against the lower end of the releasing-latch c , forcing it backward on its pivot-pin,

the upper end of the latch pressing against the end of the trigger-rod c^2 and forcing it forward, the trigger end passing along a slot f' made in the guard-lever G, thus cocking the gun. It is readily seen that the pressure of the finger in the ordinary way of firing on the forward end of the trigger-rod forces the trigger-rod backward. Its other end turns the releasing-latch on its pivot, and the lower end of the latch, pressing upward and forward on the inclined side of the end of the piston-rod b^4 , forces the piston-rod down, thereby releasing the notch from the holding-pin d^5 , and the retractive force of the helical spring b forces the piston forward, compressing the air and driving it through the little connecting-conduit d into the barrel of the gun.

Underneath the barrel is a hollow cylinder E, used as a magazine to hold the projectiles. To the under side of the barrel, by means of a screw o , I fasten a piece of metal o' with an ear o^2 to be turned on the screw, so that when filled the ear o^2 may cover the end of the magazine, and thus prevent the projectiles from dropping forward from it.

At the breech of the barrel I provide a loading-pin F, which is a piece of metal fitted to slide vertically, as hereinafter described. Near the upper end of this loading-pin is a hole g , large enough to receive one projectile intended to be used in the gun, but made cup-shaped, so that the projectile may not fall backward into the tube d . The hole is situate in the pin, so that when the gun is ready to be fired it is in exact line with the bore of the barrel and forms an extension to it. The hole passes, reduced in size, from the bottom of the cup, so that the projectile may not escape backward clear through the pin and forms the means of communicating the air from the tube d directly against the projectile. The thickness of the barrel and of the magazine is also so arranged that when the loading-pin F is drawn down by the action of the lever G the hole g is in direct alignment with the bore of the magazine E, so that by tilting the gun upward one projectile may drop into the hole in the loading-pin. The lower part of the loading-pin is flattened and the lower end is slightly headed. The lever G is slotted, so as to pass over the headed end of the loading-pin; but the sides of the slot pass over the head with just enough friction to pull the pin down so that the hole g will come into line with the hollow of the magazine as the lever G is pressed downward and with sufficient friction to force the pin to place in line with the barrel as the lever passes over it in returning to its normal position, as shown in the drawings. The shoulder O^3 , bearing on the plate p , secured to the gun by the screw-pin p' , prevents the friction of the slotted lever from pulling the loading-pin below its lowest position in alignment with the bore of the magazine.

Having thus described my invention, its

operation is as follows: The magazine is filled with shot or other desired projectiles of suitable size, and the cap o^2 is closed at its mouth. The free end of the lever G, which may be turned into a convenient handle, is pulled downward. The friction of the sides of the slot g^2 over the head of the loading-pin draws it down till the shoulder o^3 touches the plate p . When the hole g is in alignment with the bore of the magazine, the resistance of the shoulder o^3 overcomes the friction of the sides of the slot and the lever slips over the headed end of the loading-pin and the lever passes onward in its course. The rod d^3 , pressing against the pin d' as the lever G moves downward, forces the piston-rod b^4 backward until the inclined end passes the releasing-latch backward and the trigger forward into full-cock and the notch in the piston-rod engages the pin d^5 and the helical spring is compressed as far as possible. The muzzle of the gun is slightly raised and a single projectile drops into the cup-shaped hole g in the loading-pin. The lever G is returned toward its normal position, and as the sides of the slot g^2 come in contact with the headed end of the loading-pin and the upward pressure is continued the loading-pin is forced upward till its top touches the upper side of the bore of the barrel, and the hole g , with its single projectile, is in exact alignment with the bore of the barrel and the pin can go no farther, when the slot g^2 passes over the head and the lever strikes home. The gun is then sighted, the trigger is pulled, the trigger-rod presses against the upper end of the pivoted releasing-latch c , the lower end moving against and upon the inclined end of the piston-rod b^4 , depresses it sufficiently to release the notch from the detaining-pin d^5 , and the retractive power of the helical spring b forces the air through the cylinder C, the tube d , and the hole in the pin F against the projectile, discharging it from the gun.

Having thus described my invention and the method of its operation, what I claim, and desire to secure by Letters Patent, is—

1. An air-gun composed of a barrel having a magazine underneath it and a stock, the barrel provided with a loading-pin, the stock having a cylinder containing the compressing device, a tube to conduct the air from the cylinder to the barrel, the releasing-latch in the toe of the stock, and an operating-lever pivoted to the stock and frictionally connected to the loading-pin when in normal position, substantially as and for the purposes described.

2. An air-gun composed of a barrel having a magazine underneath it and a stock, the barrel provided with a loading-pin, the stock having a cylinder containing the compressing device, a tube to conduct the air from the cylinder to the barrel, the releasing-latch in the toe of the stock, an operating-lever pivoted to the stock, and the connecting-rod, one end movably secured to said lever in front of

said pivotal point, its other end in operative connection with the compressing device, substantially as described.

3. An air-gun composed of a barrel having
5 a magazine underneath it and a stock, the barrel provided with a loading-pin, the stock having a cylinder containing the compressing device, a tube to conduct the air from the cylinder to the barrel, the releasing-latch
10 in the toe of the stock, an operative lever pivoted to the stock and frictionally connected to the loading-pin when in its normal position, and the connecting-rod, one end movably secured to said lever in front of said
15 pivotal point, its other end in operative connection with the compressing device, substantially as described.

4. In an air-gun, the combination of the removable barrel provided with a hooked
20 tongue, and the spring a' , one end secured to the barrel and adapted to close over a pin in the stock to secure rigidity in the connection of the barrel to the stock, the other end formed into a sight, the pin, and the
25 stock, substantially as and for the purposes set forth.

5. In an air-gun, the combination of a stock, the receiver, and the barrel separably connected to the receiver, an air-cylinder located in the stock, a spring-actuated piston
30 contained therein, the cylinder having one end inserted in the receiver, and an air-tube connecting the cylinder to the barrel, the sear or latch located in the extreme butt-end of the stock, and a trigger-rod and trigger integral therewith extending from the trigger-guard to the sear, substantially as described.
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6. In an air-gun, the combination of a loading-pin arranged to vertically move in the
40 breech of the barrel, alternately registering with the barrel and the magazine as the operation of loading requires, the lower part flattened and projecting from the stock, its lower end slightly headed, and the lever slot-

ted to receive said head when the lever is in 45 normal position.

7. In an air-gun, the combination of a barrel, the magazine, and the loading-pin, alternately registering with the barrel and the magazine, as the operation of loading re- 50 quires, the lower part flattened and its lower end slightly headed, and means in frictional contact with the loading-pin to vertically actuate the same, substantially as and for the purposes set forth.

8. In an air-gun, the combination of a loading-pin arranged to vertically move in the breech of the barrel, alternately registering with the barrel and the magazine, as the operation of loading requires, the lower part 60 flattened, passing through the plate p , and its lower end slightly headed, and the plate p , with the lever slotted, substantially as and for the purposes set forth.

9. In an air-gun, the combination of an air- 65 cylinder, a piston, and piston-rod, said rod extending to a cocking-catch in the toe of the stock, and a trigger-rod and trigger integral therewith, said rod extending through the lock and along the stock to the releasing-latch situated in the toe of the stock and bearing 70 upon the piston-rod when in firing position, substantially as and for the purposes set forth.

10. In an air-gun, the barrel and magazine, 75 in combination with the loading-pin having a flattened lower portion slightly headed, and the lever at one end pivoted to the stock, its forward portion slotted to secure a frictional draft over the headed lower end of the load- 80 ing-pin, substantially as described.

In testimony whereof I hereto subscribe my name in the presence of two witnesses.

ROBERT ALDRICH.

Witnesses:

HENRY W. KING,
WM. H. ELWELL.