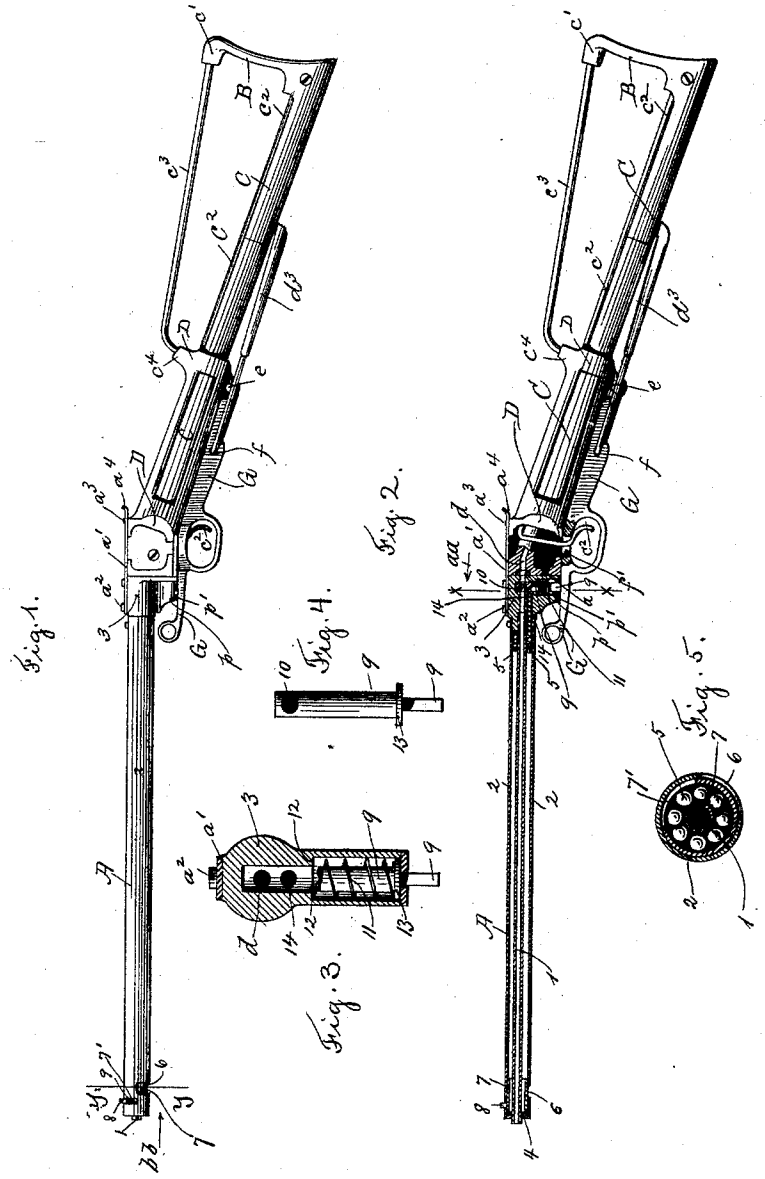
(No Model.)

J. C. HOWE.

AIR GUN.

No. 483,651. Patented Oct. 4, 1892.



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UNITED STATES PATENT OFFICE.

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AIR-GUN.

SPECIFICATION forming part of Letters Patent No. 483,651, dated October 4, 1892.

Application filed October 17, 1891. Serial No. 408,986. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. HOWE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Air-Guns; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to air-guns, and more particularly to certain improvements in the construction and operation of the air-gun patented September 22, 1891, No. 459,732.

The object of my invention is to improve upon the construction and operation of the air-gun shown and described in said patent and to overcome some serious defects in said air-gun.

My invention consists in the improved construction of the barrel and magazine of the gun and of the loading-pin, as will be hereinafter fully described, and the nature thereof indicated by the claims.

The air-gun described in said patent belongs to that class of air-guns which are provided with a magazine for holding the shot for repeating purposes and in which the shot or other projectiles are discharged by compressed air forced into the barrel of the gun by means of a piston operated by a spring. In the air-gun described in said patent the magazine for holding the shot or other projectiles consists of a single tube or cylinder made separate from the barrel and located and secured upon the under side of the barrel. The loading-pin, which works in connection with said magazine to carry the shot to the bore of the barrel, is connected with and operated by the lever G. The lower end of said loading-pin F extends through a slot in said lever. It has been found in practice that the loading-pin F does not work properly when it is constructed and operated as shown in said patent, and great annoyance is caused by the lower end of said loading-pin F binding and holding the lever G sometimes, so as to prevent the quick and easy operation of said lever in loading the gun, and at other times the lower end of said loading-pin is not properly engaged by the lever G, so that in loading the gun the loading-pin F is not drawn down in the proper manner to receive a shot from the magazine and upon the return of the trigger G is not operated to properly carry the shot to the bore of the barrel. My present invention is designed to overcome this serious fault in the construction and operation of the loading-pin F as shown, described, and claimed in said patent and to make a spring-actuated loading-pin disconnected from the lever G, and also to provide an improved magazine forming a part of the barrel of the gun, which magazine will hold eight times the amount of shot that the magazine shown in said patent will hold. I have shown in the drawings the air-gun shown and described in said patent with my improvements applied thereto.

Referring to the drawings, Figure 1 is a side view of an air-gun embodying my improvements. Fig. 2 is a partial sectional view of the gun shown in Fig. 1, showing my improved construction of the loading-pin and of the barrel and magazine. Fig. 3 is a sectional detail on an enlarged scale, taken on line *x x*, Fig. 2, looking in the direction of arrow *a a*, same figure, the upper part of the loading-pin being broken away. Fig. 4 is a detail of the loading-pin; and Fig. 5 is, on an enlarged scale, a cross-section on line *y y*, Fig. 1, looking in the direction of arrow *b b*, same figure, showing shot held in the magazine.

The construction, arrangement, and operation of the parts of the gun shown in the drawings, with the exception of the loading-pin and the barrel and magazine, are the same as the construction, arrangement, and operation of the parts of the gun shown in said patent. It is therefore unnecessary to give a detail description of the several similar parts of the air-gun, but only of my improvements.

In order to more clearly understand the construction of the gun shown in the draw-

ings, I have used the same letters and figures of reference that are used in said patent for similar parts.

In the accompanying drawings, B is the stock, and A the barrel portion, of the gun. In the stock B is located the mechanism for compressing the air by means of a piston and a spring (not shown) working in the cylinder C and operated to compress the air by means of the lever G, pivoted at *e* on the part D, and the lever d^3, attached at *f* to the lever G and at its other end to the piston-rod (not shown) within the cylinder C, all as fully shown and described in said patent. By drawing the lever G downwardly and backwardly on its pivot *e* the piston contained within the cylinder C is moved backwardly and the spring compressed and the piston-rod is engaged by a pin which holds it in its backward position, all as fully shown and described in said patent.

A trigger-rod c^2 extends above the cylinder C, with its front end bent downwardly and backwardly and extending through a slot *f'* in the lever G within the trigger-guard, forming a part of said lever, to be engaged by the operator. The other end of said trigger-rod c^2 is adapted to engage a latch pivoted in the toe of the stock, which latch is adapted to engage and release the piston-rod, to release the piston, and to discharge the gun, when said releasing-latch is operated by the pulling of the trigger c^2, all as fully shown and described in said patent.

I will now proceed to describe my improvements, which are not found in said patent.

The barrel A consists of a central tube 1, connected at its inner end with the breech portion 3. Through said tube 1 the shot or projectiles are discharged, the compressed air passing through the tube *d* into the tube 1. Encircling the central tube 1, through which the shot is discharged, is a second tube 2, forming the outer surface and exposed portion of the barrel A. The tube 2 is secured at its inner end to the breech portion 3, which is attached to the stock B in the manner shown in said patent, and into the outer end of the tube 2 is fitted a disk 4, having a central hole therein, through which extends the outer end of the tube 1. The tube 1 is thus held in its proper position at its outer end relatively to the tube 2. The tube 2 forms the magazine of the gun and furnishes a chamber or receptacle extending entirely around the central tube 1, which may be filled with shot 5, as shown in Fig. 5. The shot 5 are put in the tube 2 through an opening 6 therein, preferably at the outer end of the tube. This opening is opened and closed by means of a cylinder 7, extending within the tube 2 at its outer end and having an opening 7' therein, corresponding to the opening 6 in the tube 2. The cylinder 7 is provided with a pin 8, extending through a slot 9 in the tube 2, and by means of said pin and slot the cylinder 7 is revolved within the tube 2 to bring the opening 7' opposite the opening 6 to allow of the admission of the shot into the tube 2 or to bring the solid portion of the cylinder 7 over the opening 6 to close the same, as shown in the drawings. When the tube 2 or magazine is filled with shot and the opening 6 therein closed by the cylinder 7 and the gun is ready for use, the pin 8 acts as a "sight" at the end of the barrel. A hole or opening 14 in the lower part of the breech portion 3 connects with the inner end of the tube 2 at the lower part thereof, as shown in Fig. 2, and allows the shot 5 to pass from said tube through the opening in the breech portion 3 to the loading-pin 9. The loading-pin 9 is supported and adapted to move vertically up and down in an opening in the breech portion 3. Said loading-pin 9 is provide with a hole 10 through its upper end, which when the loading-pin is in its downward position is adapted to come opposite the hole 14 in the breech portion 3, through which the shot pass from the tube 2. The loading-pin 9 is held in its downward position ready to receive the shot from the tube 2 by means of a spiral spring 11, encircling said pin and bearing at its upper end against shoulders or notches 12, made in the breech portion 3, and at its lower end against a collar or flange 13 on the pin 9. It will thus be seen that the loading-pin 9 is spring-actuated and automatic in its operation to move downwardly to receive the shot from the magazine when the lever G is drawn downward and backward to compress the air, as described in said patent. After the air has been compressed the return movement of the lever G forces the loading-pin 9, the outer end of which extends below the breech portion 3, and is engaged by the lever G into its upper position, as shown in Fig. 2, against the action of the spring 11, so as to bring the opening 10 in the pin 9 in line with the opening in the tube *d* and the central tube 1, as shown in Fig. 2. The gun is now ready to be discharged. After the gun is discharged the downward movement of the lever G to again compress the air allows the spring 11 to act and to move downwardly the loading-pin 9 to receive another shot in the hole 10 therein, and the return movement of the lever G raises the loading-pin, as above described, ready for the discharge of the gun.

From the above description, in connection with the drawings, it will be seen that I provide an air-gun having the barrel portion of the ordinary form and size, which barrel portion acts as a magazine or receptacle for the shot and is capable of holding a large number of shot—in practice, as many as eight hundred—and that I also provide in an air-gun a self-acting loading-pin, which will not interfere in any way with the free operation of the lever G and will always be in proper position to receive the shot from the magazine and to carry it into line with the air-tube and the bore of the barrel.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. The barrel of an air-gun, consisting of an inner tube serving as the bore of the barrel and an outer tube encircling the inner tube, with a space between the tubes to serve as a magazine and hold the shot or projectiles, the outer tube having an opening therein through which the shot are inserted, and means for opening and closing said opening, substantially as set forth.

2. In an air-gun of the class described, the magazine for holding the shot, consisting of a tube forming the outer surface of the barrel of the gun and encircling a tube of less diameter forming the bore of the barrel, with a space between the tubes, into which the shot are inserted through an opening in the outer tube, substantially as set forth.

3. In an air-gun of the class described, the magazine of the gun, consisting of a tube forming the outer surface of the barrel of the gun and encircling a tube of less diameter forming the bore of the barrel, with a space between the tubes, into which the shot are inserted through an opening in the outer tube, and means for opening and closing said opening, substantially as set forth.

4. In an air-gun of the class described, the magazine of the gun, consisting of a tube forming the outer surface of the barrel of the gun and encircling a tube of less diameter forming the bore of the barrel, with a space between the tubes, into which the shot are inserted through an opening in the outer tube, and means for opening and closing said opening, and an opening leading from the inner end of said magazine-tube into the breech of the gun to allow the shot to pass from said tube to the loading-pin, substantially as set forth.

5. In an air-gun of the class described, the combination, with the barrel consisting of an inner tube serving as the bore of the barrel and an outer tube encircling the inner tube, with a space between the tubes to serve as a magazine and hold the shot, and means for opening and closing the opening in said outer tube, through which the shot are inserted, and an opening at the inner end of said magazine-tube and in the breech portion to allow the shot to pass from the magazine to the loading-pin, of a spring-actuating loading-pin having an opening therein to receive the shot from the magazine and adapted to be moved to carry the shot in line with the bore of the barrel, substantially as set forth.

6. In an air-gun of the class described, the combination, with the breech portion provided with openings therein leading from the magazine and from the bore of the barrel, of a spring-actuated loading device adapted to receive the shot from the magazine to carry the same to the bore of the barrel and consisting of a pin 9, having a hole 10 therein, and a flange or collar 13 thereon to limit the movement of the pin 9, and an actuating-spring 11, encircling the pin 9 and bearing at its lower end on the collar 13 and at its upper end on shoulders or notches formed in the breech of the gun, for the purpose stated, substantially as set forth.

7. In an air-gun of the class described, the combination, with the breech portion having a vertical opening therein and horizontal openings leading from said vertical opening to the magazine of the gun and to the bore of the barrel, of a spring-actuated loading device adapted to be automatically moved to receive the shot from the magazine and to be actuated by the loading-lever to carry the shot from the magazine to the bore of the barrel, said loading device consisting of a pin located in the vertical opening in the breech of the gun and having a hole 10 therein and a flange or collar 13 thereon adapted to engage with a plate secured upon the lower surface of the breech to retain the pin in place, and a spring 11, encircling said pin and bearing at its lower end against the collar 13 and at its upper end against shoulders or notches 12, said spring serving to move the pin 9 into position to receive the shot from the magazine, substantially as set forth.

8. In an air-gun of the class described, the combination, with a metal tube forming the bore of the barrel, of a second metal tube of greater diameter than the first-mentioned tube and encircling the same, with a space between the tubes to serve as a magazine and hold the shot, and an opening in the outer tube, through which the shot are inserted, and means for opening and closing said opening, consisting of a cylinder extending within the magazine-tube and provided with a pin extending through a slot in the tube to move said cylinder, said pin serving as a sight at the end of the barrel, substantially as set forth.

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