UNITED STATES PATENT OFFICE.

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SHOT-MAGAZINE FOR SPRING AIR-GUNS.

1,114,491.

Application filed May 31, 1913. Serial No. 771,014.

Patented Oct. 20, 1914.


To all whom it may concern:

Be it known that I, CHARLES F. LEFEVER, a citizen of the United States of America, residing at Plymouth, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Shot-Magazines for Spring Air-Guns, of which the following is a specification, reference being had thereto.

The invention relates to air guns of that type in which the initial movement of the shot or projectile is imparted thereto by the mechanical impact of the plunger, while the high velocity is obtained by compressed air.

It is the object of the present invention, first, to obtain a construction of magazine and shot-feeding mechanism which will successively feed a series of shot to the barrel without regard to the position in which the gun is held.

It is a further object to increase the effectiveness by preventing leakage of the compressed air, and further to obtain a simple and inexpensive construction to manufacture.

In the drawings: Figure 1 is a longitudinal section through a portion of a gun barrel provided with my improvement; Fig. 2 is a perspective view of the shooting barrel and magazine detached; Fig. 3 is a view similar to Fig. 1, showing a gun in operation; and Fig. 4 is a cross section.

A is the false barrel of the gun, in a portion of which is formed the air compression cylinder B for the plunger or piston C, and D is the piston abutment.

E is the true or shooting barrel, which is detachably secured centrally within the barrel A, preferably by providing it at its inner end with a screw-thread nipple F for engaging a corresponding threaded socket in the abutment D. The outer end of the barrel E is provided with a cap member G which fits within the barrel A and holds the shooting barrel concentric therewith.

H is a tubular projection on the piston C which is adapted to enter the end of the barrel E and to impart the initial movement thereto.

For storing and feeding the shot to the barrel E, I have preferably provided a mechanism constructed as follows: I is a channel bar arranged adjacent to the barrel E and preferably secured thereto by flanges J projecting from opposite sides of the channel bar and encircling the barrel. These flanges may be secured to the barrel by soldering or in any other suitable manner. The outer end of this channel bar preferably extends within the cap G, while the inner end is provided with a rounded portion K forming a guide and deflector for the shot arranged within the channel. This deflector is opposite an aperture L in the barrel E which is of sufficient size to permit one shot to drop therethrough, so as to be in the path of the tubular projection H. The shot are placed in the channel of the barrel I by insertion through an aperture M therein, and the feeding of the series toward the end E' is accomplished by a spring-pressed follower N within the channel. This follower may be retracted by a finger piece O which projects outward through the slot between the inner edge of the channel bar and the barrel, and a notch P in one side of the channel serves to engage the finger piece O and hold the follower in retracted position.

In use, to load the gun the barrel E is disengaged, and the plunger N retracted against the pressure of the follower spring Q and temporarily locked by engagement of the finger piece O with the notch P. The shot may then be successively introduced through the aperture M into the channel, and when the latter is full the finger O is disengaged from the notch so as to permit the tension of the spring to operate upon the series. The barrel E is then re-inserted in the false barrel A, after which the gun is ready for use.

To shoot the gun, the plunger spring is compressed by mechanism not shown, and upon the release of this spring by the trigger the plunger is actuated forward, driving the tubular projection H into the barrel E and propelling forward the shot in said barrel. At the same time the air compressed in front of the plunger or piston C will pass in through the tube H and will develop a pneumatic pressure sufficient to accelerate the shot as it passes through the barrel. After each operation the spring Q will automatically feed the series of shot forward so that another one is always in the barrel E in readiness to be shot.

As above stated, the high velocity is imparted to the shot by the compressed air, 110...
and the efficiency is dependent upon the air pressure, which in turn is dependent upon the closeness of fit of the shot in the shooting barrel. To insure a tight fit, I preferably form the barrel E, as shown, with its rear end E' slightly contracted in diameter by swaging or otherwise. The amount of contraction of the barrel is such as to be slightly smaller than the diameter of the shot so that the latter will not become displaced in any position of the gun. The air pressure alone might not be sufficient to force the shot through this contracted portion of the barrel, but the impact of the tubular projection H will produce this effect and incidentally will contract the diameter of the shot and enlarge its contacting surface with the bore of the barrel. Thus when the shot is forced forward by the member H it will form an air tight plug, preventing leakage of the air compressed by the piston. At the completion of the movement of the piston the shot thus propelled will reach the enlarged portion of the barrel, where it is free to be actuated by the compressed air acting thereupon. Thus the velocity will be greatly accelerated and the effectiveness of the shot correspondingly increased.

What I claim as my invention is:

1. In a gun, the combination with the barrel, of a magazine therefor formed of a member having a U-shaped cross section, said member being arranged parallel to the barrel, and a deflector at the inner end of said member arranged opposite an aperture in the barrel.

2. In a gun, the combination with a barrel, of a magazine therefor comprising a channel bar arranged parallel thereto, a spring-pressed follower within the channel, an actuating lug on said follower, projecting outward through a slot between the channel bar and the barrel and forming a means of compressing the spring, and a deflector at the inner end of said channel bar arranged opposite an aperture in the barrel.

3. In a gun, the combination with the barrel, of a magazine therefor, comprising a channel bar arranged parallel thereto, flanges upon opposite sides of said channel bar embracing the barrel and forming a means for attaching the channel bar to the barrel, a spring-pressed follower within said channel bar, a finger on said follower projecting outward through the slot between the channel bar and the barrel, and a notched bearing in said channel bar for engaging said finger to hold said spring in compressed position for loading the magazine.

4. In a gun, the combination with the barrel, of a magazine therefor comprising a channel bar arranged parallel thereto and provided with a shot-receiving aperture, a deflector at the inner end of said channel bar arranged opposite an aperture in said barrel, a spring-pressed follower in said channel bar, a lug or finger on said follower projecting outward through a slot between said channel bar and the barrel, forming an actuating means for retracting the follower, and a notched bearing in said channel bar for holding said follower in retracted position to permit of feeding the shot through said aperture to the channel bar.

5. In a gun, the combination with a false barrel, of a true barrel concentrically arranged therein, a magazine also within the false barrel comprising a channel-bar arranged parallel to the true barrel, the true barrel being provided with an aperture communicating with the interior of the channel-bar.

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

CHARLES F. LEFEVER.

Witnesses:

JAMES P. BARRY,
DELBERT COLLINS.