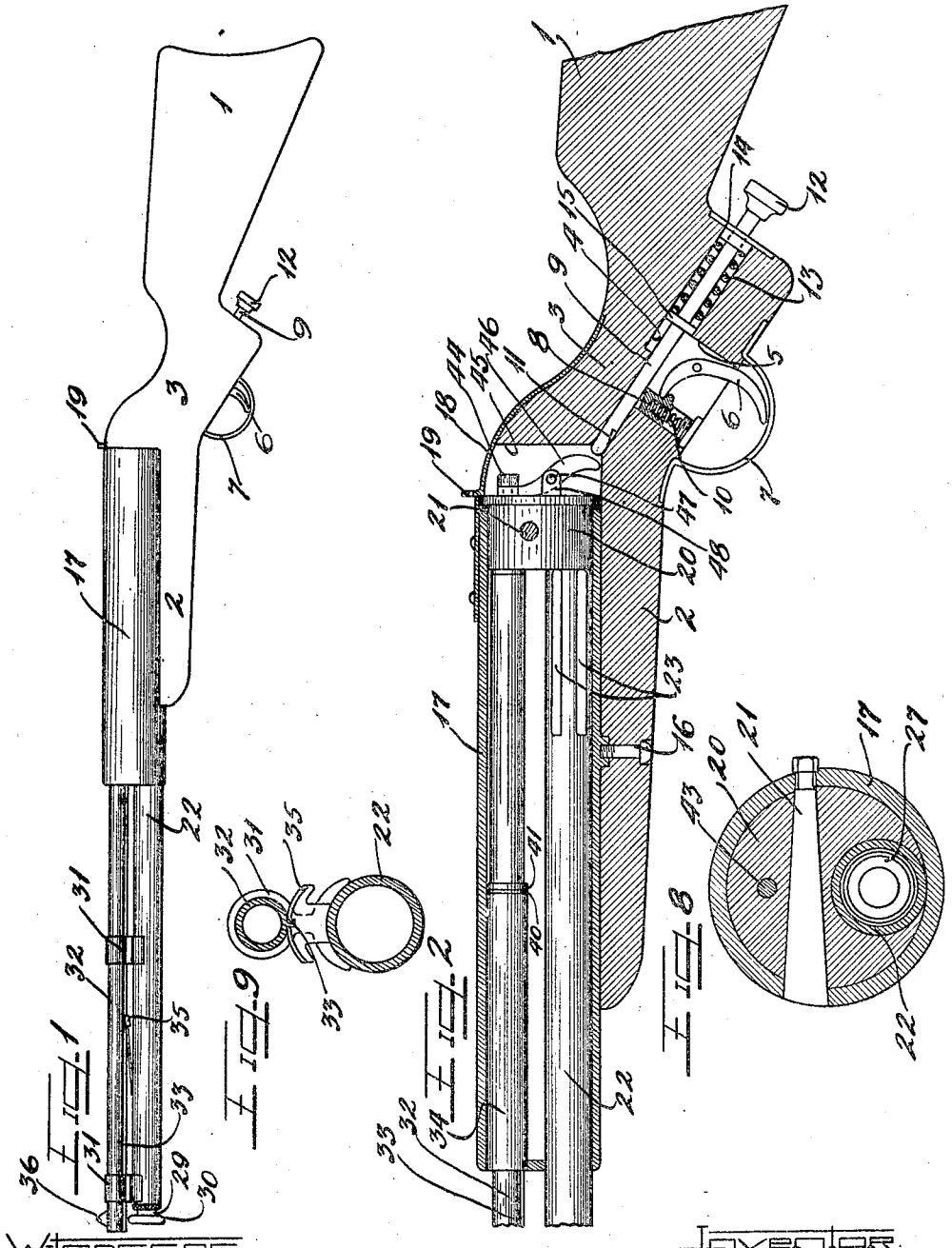
Jan. 22, 1924. 1,481,526

W. PAUL

AIR SHOTGUN

Filed March 31, 1923 2 Sheets-Sheet 1



Witnesses
H. G. Clarke
Fred E. Baesler

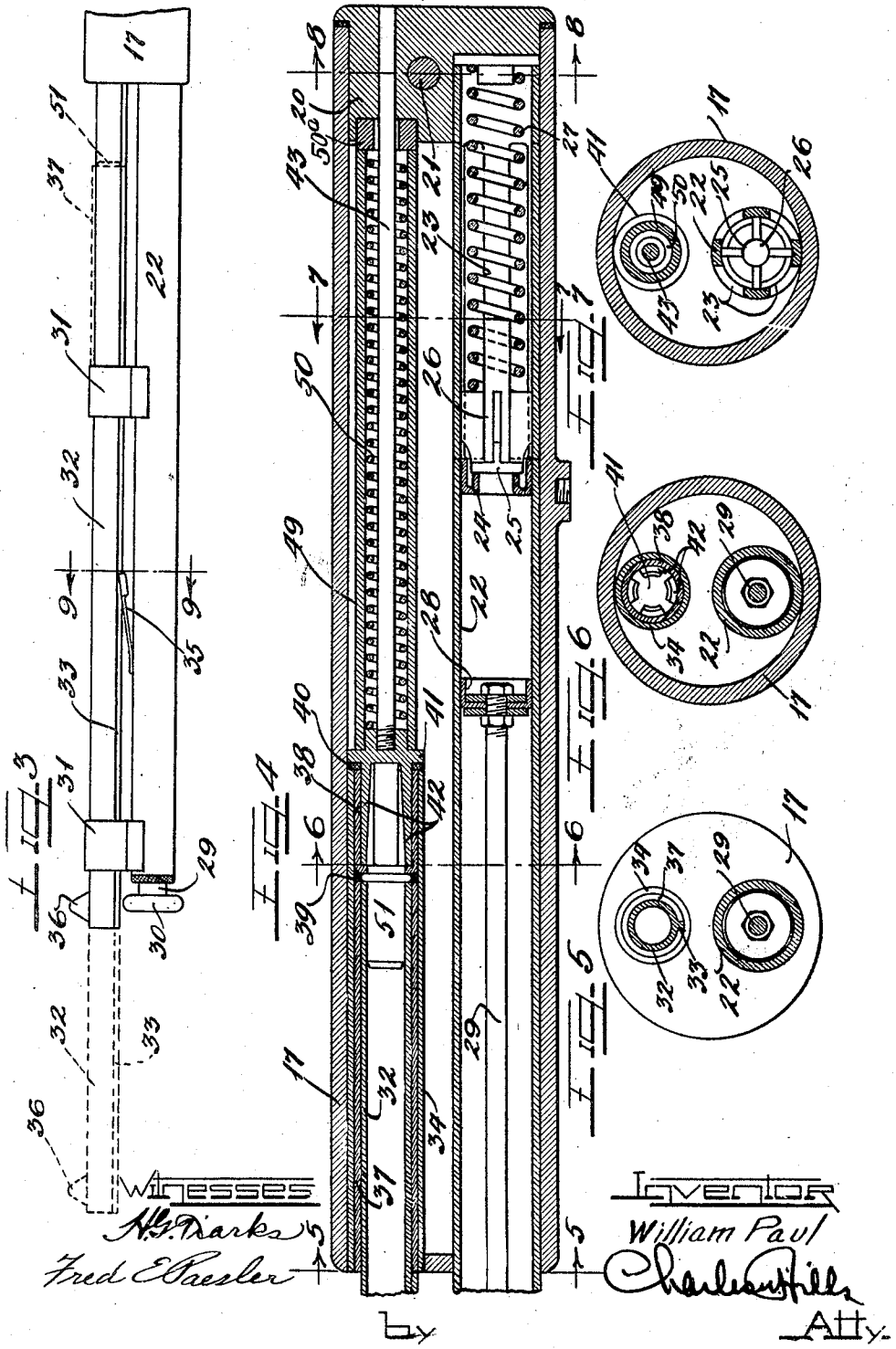
Inventor
William Paul
Charles Wells
Atty.

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W. PAUL

AIR SHOTGUN

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Patented Jan. 22, 1924. 1,481,526

UNITED STATES PATENT OFFICE.

WILLIAM PAUL, OF BEECHER, ILLINOIS.

AIR SHOTGUN.

Application filed March 31, 1923. Serial No. 628,980.

To all whom it may concern:

Be it known that I, WILLIAM PAUL, a citizen of the United States, and a resident of the town of Beecher, in the county of Will and State of Illinois, have invented certain new and useful Improvements in an Air Shotgun; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to an improved type of an air shot gun adapted for firing bullets or other projectiles by the force of compressed air and furthermore so constructed that a plurality of bullets may be fired in consecutive order by compressed air from the same air compression chamber without recharging the chamber.

It is an object of this invention to provide an air shot gun of the breech loading type wherein shot is adapted to be fired from a shell positioned in the inner end of the barrel by means of a predetermined discharge of compressed air from a compression chamber of a capacity sufficient to permit a number of shots to be fired without requiring refilling the air chamber with compressed air after each shot.

It is also an object of the invention to provide an air shot gun wherein the trigger is adapted to be set after each shot is fired without disturbing the air release control valve mechanism.

It is a further object of the invention to construct an air shot gun wherein the air release valve mechanism is adapted to close automatically after a trigger operation so that only a predetermined quantity of compressed air will be discharged from the air compression chamber each time a shot is fired.

It is an important object of this invention to provide an air shot gun of simple and inexpensive construction wherein the valve controlling the discharge opening of the compressed air chamber is adapted to automatically close after each operation of the trigger without interference by the trigger setting mechanism so that a number of shots may be fired without requiring pumping of air into the air chamber after each shot.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

The invention (in a preferred form) is illustrated on the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a side elevation of an air shot gun embodying the principles of this invention.

Figure 2 is a fragmentary longitudinal section of the gun with parts shown in elevation.

Figure 3 is an enlarged side elevation of the barrel end of the gun showing the operation of the barrel in dotted lines.

Figure 4 is an enlarged detailed longitudinal section of the air casing.

Figure 5 is an end view of the air casing taken on line 5—5 of Figure 4.

Figure 6 is a transverse section taken on line 6—6 of Figure 4.

Figure 7 is a transverse section taken on line 7—7 of Figure 4.

Figure 8 is a transverse section taken on line 8—8 of Figure 4.

Figure 9 is an enlarged transverse section taken on line 9—9 of Figure 3.

As shown on the drawings:

The reference numeral 1 indicates a gun stock having integrally formed thereon a stock extension or arm 2 connected to said stock by an integral breech section 3. The breech section 3 is provided with a passage 4 and a recess 5 communicating with said passage. Pivoted in said recess 5 is a trigger 6 one end of which projects from said recess and is protected by means of a trigger guard 7. Mounted in the recess 5 is a latch 8 which is resiliently held in engagement with a cock rod 9 by means of a spring 10. The cock rod 9 is provided with a notch 11 (Figure 2) to receive the spring impelled latch 8 when the cock rod is pulled outwardly by means of a handle or knob 12 on the outer projecting end thereof. A coiled spring 13 is engaged around the rod 9 and has one end pressing against a stop plate 14 secured in the breech section 3 and the other end pressing against a collar 15 fastened on said rod.

Resting on the stock extension 2 and secured thereto by means of a screw 16 is a cylindrical casing or compressed air tube 17 the rear end of which sets against the breech sections 3 and is secured thereto by means

of a retaining strap 18. A sight piece 19 is formed on the strap 18.

The inner end of the air tube 17 is closed by means of a flanged plug 20 held in place by a wedge member 21 as illustrated in Figure 8. Projecting into the tube 17 is an air pump casing 22, the inner portion of which is provided with a plurality of slots 23 and seats in a recess in the plug 20. A valve seat 24 is fixed in the air pump casing 22 and normally is closed by means of a valve 25 having a valve rod 26 around which a coiled spring 27 is engaged. A pump piston 28 is provided in the pump casing 22 and has attached thereto a piston rod 29 operable by a handle or knob 30 to cause air to be pumped through the valve member 24 and the slots 23 into the air chamber of the casing 17.

Secured on the pump casing 22 are brackets or holders 31 in which a barrel 32 is slidably mounted. A guide rib 33 is formed longitudinally along the under portion of the barrel and stops short of the inner end of the barrel adjacent the outer end of a sleeve 37 fixed on the inner end of the barrel. The barrel 32 and the sleeve 37 project into a tube 34 fixed in the air casing 17. The rib 33 is provided with a notch to receive the free end of a plate spring 35 to hold the barrel in place. The outer end of the barrel is provided with a sight piece 36. Secured within the inner end of the tube 34 is a valve seat member 38 having a packing ring 39 at its outer end and a valve seat packing ring 40 on its inner end. An air release valve 41 is held against the valve seat ring 40 to prevent the escape of the compressed air from the air casing 17. Guide prongs 42 are formed on the valve 41 and project into the valve seat member 38 as illustrated in Figure 4. Secured to the valve 41 is a valve rod 43 which projects through a passage in the plug 20 and has a head 44 fixed on the outer projecting end thereof. The breech section 3 is provided with a recess 45 (Figure 2) to receive the end of the valve rod 43. Engaged on the projecting end of the valve rod 43 to the inside of the head 44 is the upper end of a valve control lever 46 fulcrumed intermediate its ends on a pin 47 supported by lugs 48 fixed on the plug 20. The free lower end of the lever 46 is positioned for co-action with the inner end of the cock rod 9. Connected to the valve 41 is a rubber tube 49 through which the valve rod 43 projects. The rear end of the rubber tube or sleeve 49 is secured to a ring 50^a which is seated in a notch in the plug 20. Engaged around the valve rod 43 within the rubber tube 49 is a coiled spring 50 to prevent the pressure of the air in the air casing 17 from pressing the rubber tube against the valve rod. The resiliency of the rubber tube 43 serves to hold the valve 41 in closed position against the valve seat packing ring 40.

The operation is as follows:

Air is pumped into the air casing 17 by operating the air pump piston 28 by means of the pump rod 29. The air pumped by the air pump opens the valve 25 and then passes through the valve seat member 24 and through the slots 23 into the air casing 17, until the desired air pressure is reached. The rubber tube 49 acts to hold the control valve 41 in its closed position, thereby preventing escape of the air and also acting to hold the lever 46 positioned as illustrated in Figure 2.

The gun is loaded with a shot-loaded bullet 51 by simply pressing down the spring 35 and pulling the rear end of the barrel 32 out of the tube 34 into the dotted line position of Figure 3. The bullet 51 is then put into place and the barrel 32 is pushed back into the position shown in Figure 4 with the enlarged end of the bullet engaged in the packing 39 and seated against the member 38. When the barrel 32 is pushed back into place the spring 35 springs into the notch in the rib 33 to hold the barrel locked in place.

To cock the trigger 6 it is only necessary to pull the cocking rod 9 outwardly by means of the handle or knob 12 until the notch 11 is brought into register with the latch 8. When this position is reached, the spring 10 forces the latch 8 into the notch 11, thereby holding the cocking rod 9 in its retracted set position and at the same time swinging the trigger into cocked position ready for operation.

When the trigger is pulled, the latch 8 is retracted from the notch 11 thereby causing release of the cocking rod 9 which is forced inwardly by the spring 13 so that the inner end of said rod 9 springs against the lower end of the lever 46 to swing the same about its pivot. The upper end of the lever 46 is thus moved rearwardly against the head 44 thereby causing the valve rod 43 to open the control valve 41 against the action of the rubber tube 49. A predetermined quantity of the compressed air from the air casing 17 is thus discharged against the bullet 51 in the barrel 32. The bullet is open at both ends and is packed with shot so that as a quantity of the compressed air is discharged from the air chamber the load of shot in the bullet 51 is fired through the barrel 32 of the gun.

When the trigger 6 is operated, the cocking rod 9, after operating the air control lever 46, rebounds into the position illustrated in Figure 2 out of contact with the lever 46. The rubber tube 49 is thus permitted to act automatically to close the valve 41 almost immediately after the pull-

ing of the trigger. It will thus be noted that only a predetermined quantity of the compressed air is discharged from the air chamber each time the trigger is operated. By this novel arrangement a plurality of shots may be fired without requiring repumping of air into the air casing 17.

I am aware that numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. An air shot gun comprising a stock, an air casing mounted thereon, an air pump connected with the casing for pumping air into said casing, a tube fixed in said casing, a control valve closing the inner end of said tube, a barrel removably engaged in said tube for carrying a bullet to be fired, a resilient tube for holding said valve in closed positon, a valve operating mechanism connected with the valve, a trigger in said stock, and a spring controlled cocking member adapted to be operated to cock the trigger and when the trigger is pulled to actuate the valve operating mechanism to open the control valve to permit only a predetermined charge of compressed air to be discharged from the air casing to fire the shot.

2. In an air shot gun, the combination with a stock, of an air casing thereon, means for pumping air thereinto, a valve for controlling the discharge of air from said casing, a rubber tube for holding said valve in closed position, an actuating means for said valve, a trigger in said stock, and a spring controlled member in said stock adapted to be operated to cock the trigger and furthermore adapted when the trigger is pulled to operate said actuating means to cause temporary opening of the valve to permit only a predetermined quantity of air to be discharged from the casing.

3. In an air shot gun, the combination with a stock, of an air casing mounted thereon, an air pump connected with the casing for pumping air thereinto, a barrel removably connected with the casing for carrying a bullet, a valve for controlling the discharge of air from said casing into the barrel, an elastic tube in said casing for holding the valve in closed position, a valve rod connected with the valve and projecting through said tube, a spring engaged around the rod within the tube to hold the tube against collapsing by the pressure of the air in said casing, a trigger in said stock, a spring controlled latch engaged therewith, an operating member connected with the valve rod, and a spring controlled cocking rod adapted to be operated to cock the trigger and further adapted when the trigger is pulled to momentarily operate the operating member to cause opening of the valve to permit only a predetermined discharge of compressed air from the air casing to fire the bullet.

4. In an air shot gun, the combination with a stock, a cylinder mounted thereon, a pump for pumping air into the cylinder, a barrel projecting into said cylinder, a valve controlling the discharge of air from said cylinder into the barrel to fire a charge in the barrel, a resilient member for holding the valve in closed position, a valve stem connected with the valve, a fulcrumed lever connected with said valve stem, a spring controlled rod slidably mounted in said stock for operating said lever to cause opening of the valve, a latch member removably engaged with said rod for holding the same in retracted position, and a trigger in said stock adapted to be cocked when said rod is retracted and further adapted to retract the latch to permit said rod to actuate the lever.

5. In an air shot gun the combination with a stock, of an air casing mounted thereon, a valve therein for controlling the escape of air from the casing, a lever for controlling the operation of said valve, a notched rod slidably projecting into said stock, a spring for operating the same, a spring latch adapted to engage in the notched rod to hold the rod retracted against the action of its spring, and a trigger in the stock adapted to be operated to retract the latch to permit the rod operating spring to force the rod inwardly to actuate the lever and open the valve.

6. In an air shot gun, the combination with a stock and an air casing, of a valve in said casing for controlling the escape of air therefrom, a resilient tube for holding the valve in closed position, a rod connected with the valve, a spring engaged around the rod within said resilient tube, and means in said stock for actuating said rod to momentarily open the valve against the action of said resilient tube.

7. In an air shot gun, the combination with a stock, of a compressed air casing thereon, a valve therein for controlling the escape of the compressed air from the casing, means for opening the valve, and a longitudinally expandible tube having continuous closed walls for automatically closing the valve to prevent all of the compressed air in the casing from escaping with a single opening of the valve.

8. In an air shot gun, the combination with a compressed air casing, a valve therein, means for opening the valve, and a rubber tube in said casing for automatically closing the valve.

9. In an air shot gun the combination with a compressed air casing, means for pumping air therein, a barrel projecting into

the casing, a valve in the casing controlling the entrance of air into the barrel from said casing, a rubber tube for holding the valve in closed position, a spring coiled in said tube to hold the same expanded, a stem connected with the valve, a pivoted member connected with the stem, a slidable rod, means for holding the same retracted, and a spring for sliding said rod inwardly to operate the pivoted member to cause the stem to open the valve against the action of said tube when said means is retracted.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

WILLIAM PAUL.

Witnesses:
H. E. EHLERS,
FRED E. PAESLER.