

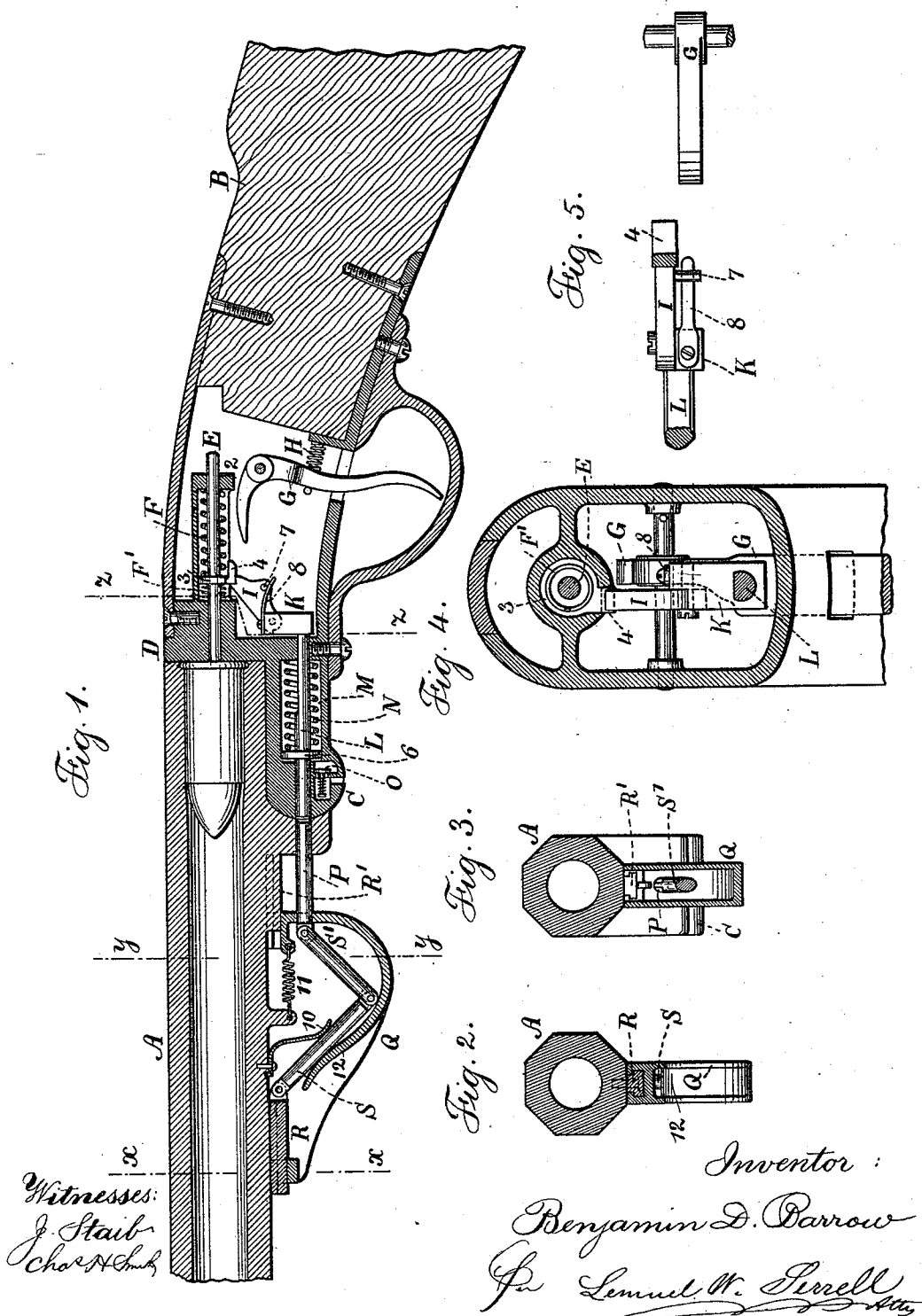
(No Model.)

B. D. BARROW.

PNEUMATIC SAFETY LOCK FOR BREECH LOADING GUNS.

No. 496,589.

Patented May 2, 1893.



UNITED STATES PATENT OFFICE.

BENJAMIN D. BARROW, OF DANVILLE, VIRGINIA.

PNEUMATIC SAFETY-LOCK FOR BREECH-LOADING GUNS.

SPECIFICATION forming part of Letters Patent No. 496,589, dated May 2, 1893.

Application filed April 4, 1892. Serial No. 427,844. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN D. BARROW, a citizen of the United States, residing at Danville, in the county of Pittsylvania and State of Virginia, have invented an Improvement in Breech-Loading Firearms, of which the following is a specification.

In breech loading and self-cocking guns, risk has heretofore existed of premature explosion in consequence of the firing pin coming into contact with the percussive device as the breech is closed, or in consequence of the safety catch not working automatically or properly holding the firing pin, or in consequence of the trigger being pulled when the hammer is supposed not to be cocked.

The object of the present invention is to insure a gradual forward movement of the firing pin when the fire arm is allowed to remain at rest and there is no risk of an accidental blow from the firing pin and the arm can only be fired when properly held and the trigger pulled.

In carrying out this invention I make use of a toggle mechanism for pressing back the hammer and a pneumatic cushion which regulates the forward movement of the hammer or firing pin, causing the same to be gradual in cases where the gun is set down or remains at rest, and when the trigger is pulled the sear between the firing pin and pneumatic cushion is moved out of the way, so that the firing pin is projected by the spring thereof.

In the drawings Figure 1 is a longitudinal section of the fire-arm. Fig. 2 is a cross section at the line *xx*. Fig. 3 is a cross section at the line *yy*, and Fig. 4 is an enlarged cross section at the line *zz*, and Fig. 5 is a plan view in the enlarged size of the trigger, sear and part of the firing pin detached.

The barrel A and the stock B are hinged together in any usual manner. A portion of the hinge or connecting device is represented at C, and the usual breech abutment D is provided together with the metal straps that unite the wooden stock to the breech, and the firing pin E is usually axial with the barrel, and there is a spring F around the firing pin acting between the abutment 2 and the collar 3 upon such firing pin to project the same when

not otherwise acted upon, and the catch 4 upon the collar 3 engages the sear I when the push pin is pressed backwardly in cocking the firing pin. The trigger G may be of any desired character; I have represented the same as fitted with the trigger spring H. There is a sear I that is adapted to engage the lower part 4 of the collar 3 upon the firing pin, and such sear is hinged to the follower K upon the end of the push pin L, and this push pin L is provided with a piston 6 within the pneumatic cylinder M, and there is in this cylinder M a spring N which is more yielding than the main spring F of the hammer, so that the latter easily pushes the pin L and piston 6 along while the sear I is in contact with the lower part 4 of the collar 3, the push pin E not being acted on by the hand as hereinafter described. After the firing, the spring N moves the pneumatic piston 6 along gradually in such cylinder M, and I provide a valve O opening inwardly to admit air freely into the cylinder M when the piston 6 is moved backwardly toward the trigger.

It is now to be understood that any suitable means may be made use of for acting upon the push pin L to give motion to the same. I have shown the pin P in line with the push pin L, which pin P passes into the sliding shield Q that is adapted to move forward or back upon the guide blocks R R' attached to the under edge of the barrel A, and there is connected with the guide block R a toggle link S and a second link S' pivoted to the end of the link S and to the front end of the pin P, and the spring 10 tends to bring the toggle links into the position shown in Fig. 1, and the spring 11 tends to draw the sliding shield Q forward, and there is upon the shield Q a cam 12 that acts upon the toggle link S when the shield Q is grasped by the hand and drawn backwardly, hence when this shield Q is so grasped and drawn backwardly, the cam 12 straightens the toggle links SS' and drives the pin P backwardly against the push pin L, giving motion to the latter and to the parts connected therewith; and as the piston 6 moves along in the cylinder M the valve O admits air freely into such cylinder M and the sear I acts against the

lower part of the collar 3 and carries with it the firing pin E until the hammer is cocked and if the sliding shield Q is liberated, the spring 11 draws the same forward and the
 5 spring 10 brings the toggle links S S' into the position shown in Fig. 1, and the spring N in the pneumatic cylinder M draws the follower K and sear away allowing the collar 3 and hammer to return to the position shown in
 10 Fig. 1, the air which is confined in the cylinder M acting as a cushion or dash pot, there being a slight leakage around the piston in the pneumatic cylinder, and the firing pin E cannot be projected forward suddenly, be-
 15 cause the sear I, follower K, push pin L and piston 6, all have to move together, and the air in the cylinder M acts as a cushion to retard the motion of the hammer and cause the same to come gradually to the forward posi-
 20 tion.

If the sliding shield Q is acted upon for retracting the hammer and the trigger G is pulled immediately thereafter, such trigger acts upon the pin 7 upon the sear I and throws
 25 the rear end of the sear out of engagement with the lower part of the collar 3, so that the firing pin is immediately projected by its spring without any interference therewith by the air cushion, and the spring 3 acting upon
 30 the pin 7 tends to throw the sear up so that it returns to the normal position of engagement with the collar of the firing pin, as indicated in Fig. 1.

It is to be understood that the upward movement of the sear under the action of the
 35 spring 8 is limited by the tail or stock at the joint of the sear, shown by dotted lines, but the sear is free to be moved downwardly by the action of the trigger.

The object of separating the push pin L and the pin P is that the barrel may be free to swing on the hinge C when the breech is opened for the withdrawal or insertion of the
 40 cartridge.

If the trigger was provided with a latch to catch the collar 3, it would hold the firing pin when cocked, but this usually is not desirable, as it leaves the hammer in a cocked condition and there is a risk of accident. In conse-
 45 quence of the trigger simply acting to unlatch the sear, the hammer is only cocked by the hand acting on the shield Q, and the parts assume a normal and uncocked position as soon as the gun is set down.

55 There may be a spring at F' in front of the collar 3 that serves to press the firing pin back slightly, and this is easily overcome by

the momentum of the parts when the pin is fired.

If this device is used on a double barrel 60 gun there can be two and the other parts remain unchanged. In this case there will be one sear and trigger for each hammer.

I claim as my invention—

1. The combination with the firing pin and 65 trigger, of a pneumatic cylinder and piston forming an air shield and a sear connected with the piston and acting upon the firing pin to retract the same, substantially as set forth.

2. The combination with a breech loading 70 fire-arm having a joint by which the barrel and the stock are connected, of a firing pin and its actuating spring to explode the cartridge, a trigger, an air cylinder push pin and piston forming a cushion and a sear connected 75 the push pin and the firing pin and adapted to be acted upon by the trigger, whereby the sear is disconnected by the trigger, or the air cushion allows the firing pin to move forward gradually if the gun remains at rest, sub- 80 stantially as set forth.

3. The combination with the barrel and stock, hinged together, and the firing pin and a trigger, of a push pin and piston within a pneumatic cylinder below the breech of the 85 gun, a follower and sear connected with the push pin, a sliding shield beneath the barrel and a pin therewith connected in line with the push pin and acting upon the same to retract the firing pin, substantially as set forth. 90

4. The combination with the firing pin and its spring and a trigger, of a sear, a push pin with which the sear is connected, an air cylinder and piston connected with the push pin and acting as an air cushion, a sliding shield, 95 toggle links and a push pin acted upon by the sliding shield to retract the firing pin, substantially as set forth.

5. The combination with the barrel and stock and the connecting hinge, of a push 100 pin, a piston therewith connected and within an air cylinder in the stock of the gun, an inlet air valve to such cylinder, a sear connected with the push pin, a firing pin and its spring acted upon by the sear, a trigger for 105 disconnecting the sear, and a sliding shield and pin acting upon the push pin and firing pin for retracting the latter, substantially as set forth.

Signed by me this 15th day of March, 1892. 110
 BENJAMIN D. BARROW.

Witnesses:

W. O. JOHNSON,
 WALTER C. NOELL.