U. MARGA.

FIREARM.

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908,294. Patented Dec. 29, 1908.

Fig. 1.

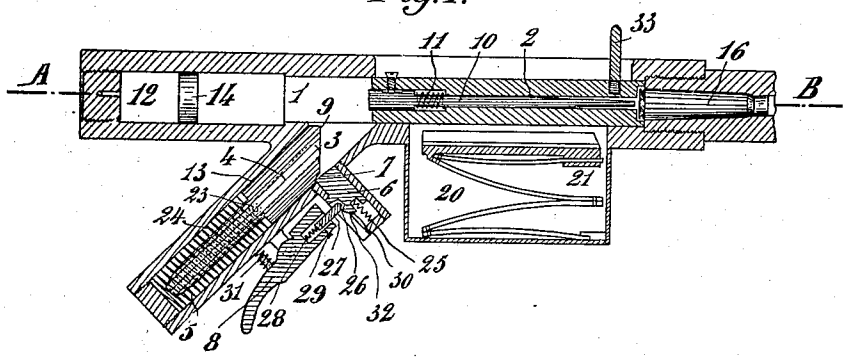
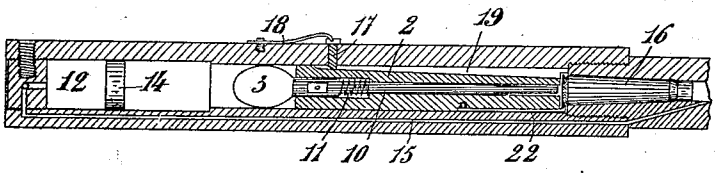


Fig. 2.



Witnesses:-

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FIREARM.

No. 908,294. Specification of Letters Patent. Patented Dec. 29, 1908.

Application filed December 13, 1907. Serial No. 406,382.

To all whom it may concern:

Be it known that I, ULDARIQUE MARGA, a subject of the Kingdom of Belgium, residing in Dieghem, near Brussels, Belgium, have invented certain new and useful Improvements in Firearms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to an automatic fire arm in which the automatic movements are obtained by the pressure of the gases caused by the firing of the cartridge. The gases necessary for the working of this mechanism are collected from the beginning of the said firing and the initial pressure is thus reduced. After having effected the automatic movements, the same gases are used to drive out the projectile.

This invention consists of a bolt for closing the cartridge magazine which is placed between the base of the cartridge and a cylinder into which is conveyed by a lateral canal a portion of the gases of the firing. A striker is adapted to move independently of this bolt which it crosses on its axis.

The backward movement of the bolt is cushioned by its engagement with an element moving in a cylinder placed on an incline on the barrel and by the gases carried behind said bolt.

Figure 1 is a longitudinal section of a gun constructed in accordance with this invention, Fig. 2 is a horizontal sectional view taken on the line A—B of Fig. 1.

The chamber 1 in which the bolt 2 moves communicates with a cylinder 3, opening into said chamber at a point near the rear end of bolt 2 when the breech is closed. A piston 4 moves in said cylinder 3 and is pressed upwards by a spring 5. When the gun is cocked, said piston 4 is maintained in lowered position by a sear 6, which engages a notch 7 of said piston 4. Said sear 6 is pressed upwards by a spring 25. A spring pressed pin 27 mounted in a recess at the fore end of the trigger 8 engages a recess 26 of the sear 6. The movement of said pin 27 is limited by a stop 29. When the trigger 8 is actuated said pin 27 withdraws the sear 6 until the shoulder 30 is released, which allows said sear to rise or move forward under the action of its spring 25. When the trigger is released it is restored to normal position by the spring 31, and pin 27 glides along the incline 32, compressing spring 28 until it enters the recess 26 in the sear 6. The piston 4 is beveled at its upper end so that the face 9 is vertical. The firing pin 10 arranged in the bolt 2 is pressed rearward by a light spring 11.

When the shooter actuates the trigger 8, the sear 6 is released from the notch 7 and the piston 4 according to the action of spring 5 is driven violently upwards causing the face 9 to strike the rear end of the firing pin 10 and drive it forward, thereby firing the charge. The firing of the charge drives the bolt 2 rearward violently against the face 9 of piston 4, and the pressure on said piston is imparted in a direction perpendicular to the axis of the piston and also in direction of said axis. The pressure directed perpendicular to the axis of the piston drives the piston against the rear wall 13 of cylinder 3, and the pressure exerted in a direction of the axis of the piston tends to carry the piston back towards the bottom of said cylinder and compresses spring 5 and causes the sear 6 to again engage notch 7 of the piston 4 which constitutes the hammer.

It will be understood that the degree of inclination of the cylinder axis 3 relative to the axis of the gun regulates the ratio of the pressure on the piston in both directions, and it may be varied at will by varying said inclination. The strength of the spring 5 will be determined according to the amount of pressure directed in line with the axis of the piston and the resistance of the wall 13 of cylinder 3 so as to be able to bear the pressure directed perpendicular to the axis of the piston. In order to reduce the backward movement of the weapon caused by the firing, it is necessary that only a part of the backward projecting power of the bolt 2 be taken by the movement of piston 4; therefore the incline of cylinder 3 is arranged so that after having forced the piston 4, into the cylinder 3 the bolt continues its way rearward and comes in contact with piston 14 which operates in a chamber 12. A portion of the firing gases is conveyed through a passage or duct 15 which opens behind piston 14. These gases form a cushion for piston 14 and cushion the remainder of the rearward movement of the bolt.

In its rearward movement the bolt 2 carries the shell 16 with it until said shell engages a pin 17, pressed by a spring 18. This pin 17 projects into a longitudinal groove 19 formed in the bolt 2. The cartridge being thus released by the pin 17 from the cup of the bolt is ejected by the spring 20 from the cartridge magazine 21 and a new cartridge falls into said cup where it is held by a spring 22 carried by the bolt 2. The latter being cushioned by the expansion of the gases inclosed behind the piston 14 and being allowed to escape but slowly through the duct 15, moves forward again after having engaged the piston 14 and comes into the position shown in the drawings so that the gun is again ready for use. A pin 23 fixed to the piston 4 is guided in a groove 24 of cylinder 3 and provides when necessary means operable by hand for moving the piston 4 to the bottom of cylinder 3. When the cartridge magazine 21 is empty, the entrance is opened by driving bolt 2 rearward by means of pin 33.

I claim—

1. A fire arm having a chamber formed in the stock thereof, a bolt operable in said chamber, a firing pin arranged in said bolt, means for actuating said pin, and means cushioned by the firing gases adapted to engage said bolt and cushion its rearward movement.

2. A fire arm having a chamber formed in the stock thereof, a bolt operable in said chamber, a firing pin arranged in said bolt, means for actuating said pin, a piston arranged in said chamber behind said bolt, and a duct arranged to convey the firing gases to said chamber at the rear of said passage.

3. A fire arm having a chamber formed in the stock thereof, a bolt operable in said chamber, a firing pin arranged in said bolt, means for actuating said pin, a piston arranged in said chamber behind said bolt, a duct arranged to convey the firing gases to said chamber at the rear of said passage, and means for cushioning the impulse of said bolt before it reaches said piston.

4. A fire arm having a chamber formed in the stock thereof, a bolt slidable in said chamber, a firing pin carried by said bolt, a cylinder mounted on said stock and opening into said chamber at the rear of the bolt when the latter is in normal position, a spring pressed piston mounted in said cylinder, means for holding said piston within said cylinder against the tension of its spring, means for releasing said piston whereby it is caused to engage said pin to move it violently forward to fire the charge, said piston serving to cushion the impulse of said bolt on its rearward movement, a piston arranged in said chamber behind said bolt, and a duct arranged to convey the firing gases to said chamber at the rear of said second piston.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

ULDARIQUE MARGA.

Witnesses:

JULES GHILAIN,

EUGÈNE VANDERPLOS.