B. T. WILLIAMS.

TOY GUN.

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1,421,334. Patented June 27, 1922.

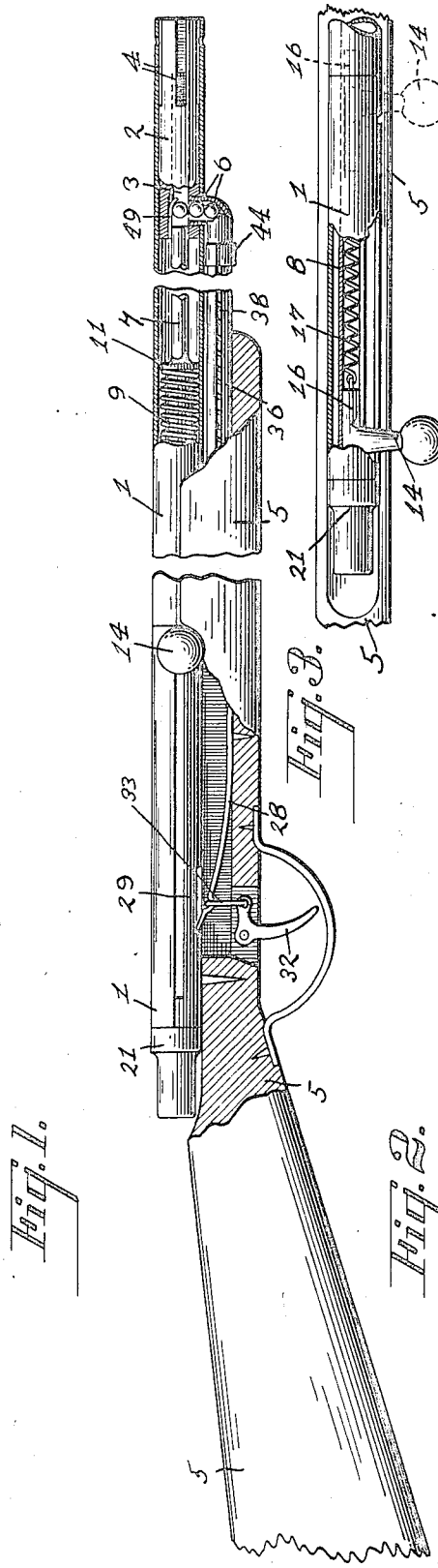


Fig. 1.

Fig. 3.

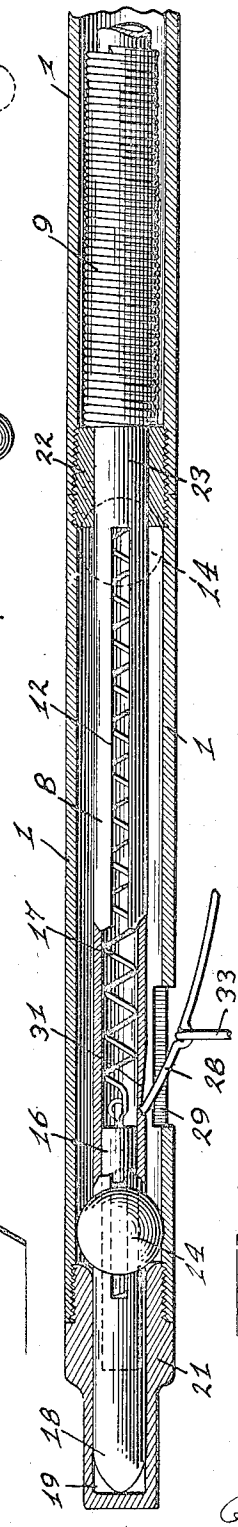


Fig. 2.

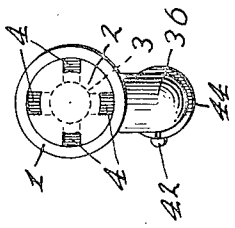


Fig. 5.

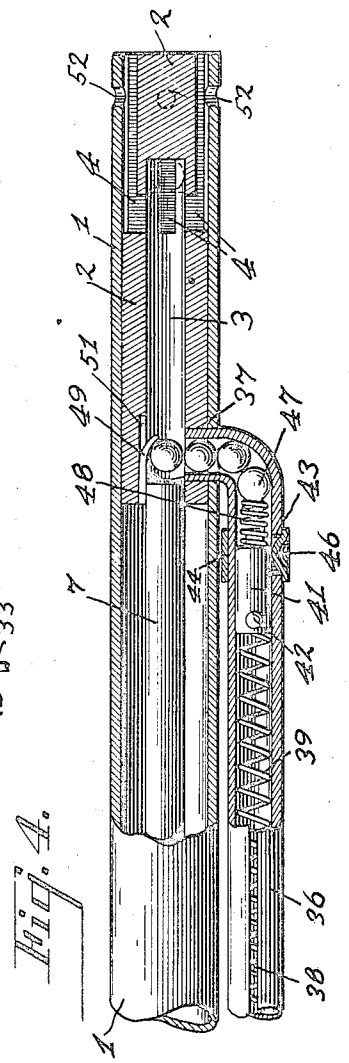


Fig. 4.

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UNITED STATES PATENT OFFICE.

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TOY GUN.

1,421,334. Specification of Letters Patent. Patented June 27, 1922.

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To all whom it may concern:

Be it known that I, BROWN THOMAS WILLIAMS, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented a new and useful Improvement in a Toy Gun, of which the following is a specification.

My invention relates to improvements in a toy gun, wherein an explosive pellet is discharged at the muzzle of the gun to simulate the sound of a fire arm.

The primary object of my invention is to provide a toy gun simulating the appearance and report of a rifle.

Another object is to provide a toy gun arranged to prevent the firing of any missile therefrom.

A further object is to provide a muzzle adapted to permit the escape of gas therefrom and to prevent the direct issuance of sparks or flame therefrom.

A still further object is to provide an improved means for cocking the gun, to permit independent movement of the cocking bolt.

A still further object is to provide a toy gun arranged to discharge an explosive pellet at the muzzle thereby causing the explosion to occur at a point sufficiently remote from the operator to reduce danger and to insure against accident to the operator.

A still further object is to provide a toy gun having a magazine arranged to deliver a single explosive pellet into the barrel when the gun is cocked.

I accomplish these and other objects by means of the novel device disclosed in the drawings forming a part of the present specification wherein like characters of reference are used to designate similar parts throughout said specification and drawings and in which:—

Fig. 1 is a broken side elevation partly in section disclosing my improved toy gun.

Fig. 2 is an enlarged sectional view of the breech end of the barrel.

Fig. 3 is a broken plan view of the breech of the barrel disclosing the cocking means.

Fig. 4 is an enlarged sectional view of the muzzle of my toy gun.

Fig. 5 is a front elevation of Fig. 4.

Referring to the drawings the numeral 1 is used to designate a gun barrel in the muzzle end of which is welded or otherwise permanently secured an impact block 2 provided with an axially disposed firing chamber 3. Grooves 4 formed in the outer surface of the block 2 communicate with the chamber 3 to form indirect passages therefrom for the escape of gas, the forward end of the chamber 3 presenting an unbroken impact surface against which explosive pellets 6 are discharged in a manner hereinafter described. The barrel 1 is secured to a suitable stock 5.

Slidably mounted within the barrel is provided a firing rod comprising a firing pin 7 and a tubular portion 8. The forward end of the firing pin 7 is arranged to enter the chamber 3 and is normally retained against the forward end thereat by a spring 9 engaging a collar 11 on the rod 8.

The tubular portion 8 of the firing rod is provided with a longitudinally disposed slot 12 near the rearward end thereat; through which extends an operating handle 14 formed upon a cocking bolt 16 slidably mounted within said tubular portion 8. A spring 17 mounted within the portion 8 is secured at one end to the bolt 16 to normally retain the bolt 16 in its extreme forward position as shown in Figure 1 of the drawings, the purpose of which being hereinafter explained. The rearward end of the firing rod is tapered as at 18 to permit ready entrance into a countersunk bore 19 provided in a breech plug 21 threaded into the breech at the barrel 1 to guide the firing rod.

The barrel 1 is preferably made in two pieces as disclosed in Fig. 2 of the drawings, the two portions being threaded onto opposite ends of a plug 22 provided with a bore 23 adapted to receive and guide the firing rod 8. The plug 22 also serves as an internal collar against which the firing rod spring 9 is compressed. The rearward portion of the barrel is provided with a longitudinally disposed slot 24 registering with the slot 12 in the tubular portion 8 of the firing rod to permit operation of the bolt handle 14 therethrough.

The gun is cocked by moving the firing pin rearwardly in the barrel 1 by means of the cocking bolt 16 operated by the handle 14, the bolt being moved first to engage the end of the tubular portion 8 of the firing rod and then to move the firing rod rearwardly to a cocked position. A spring 28 secured within a groove 27 in the stock 5 is upwardly turned at one end to pass through an aperture 29 provided in the barrel 1 to engage a notch 31 provided on the firing

rod when said firing rod has been moved to the cocked position thereby retaining the rod against the pressure of the spring 9. A trigger 32 is pivotally mounted within a slot 33 provided in the stock 5, said trigger being connected to the spring 28 by means of a link 33 whereby operation of the trigger 32 depresses the spring 28 to release the firing rod 8. A suitable trigger guard 34 protects the trigger from accidental discharge.

When the firing rod 8 has been engaged by the spring 28 the handle 14 may be released, the spring 17 operates to move the bolt forwardly in the tubular portion of the rod 8 until arrested by the plug 22, as disclosed in dotted lines in Figs. 2 and 3. In this manner the firing rod 8 is permitted to move independently when released by the trigger 32 thereby preventing any rapid forward movement of the handle 14 when the gun is fired such as might harm the hands of an operator, or cause damage to the gun by forcing the handle 14 against the forward end of slot 12 when said handle 14 is advanced with the force of the main firing spring 9. The spring 17 is of light construction having only sufficient tension to move the bolt 16 and handle 14 to its forward position as shown in dotted lines in Fig. 3.

The explosive pellets 6 are of a nature adapted to be discharged by impact when the firing pin 7 is moved forward from the cocked position by the spring 9, the pellet 6 being forced forward against closed end of the chamber 3 in the impact block 2. The spring 9 is of sufficient strength to cause a quick hard blow to be struck against the impact block 2.

The pellets 6 may be supplied into the firing chamber 3 from a magazine tube 36 communicating thereinto through an aperture 37. The magazine 36 is secured upon the lower side of the barrel 1 and is provided with a longitudinal slot 38. A spring 39 is provided within the magazine tube 36 and a guide block 41 secured to the forward end thereat. A lug 42 formed on the side of the block 41 extends outwardly through the slot 38 to permit the block 41 to be depressed against the pressure of the spring 39 to admit a plurality of pellets 6 thereabove through an aperture 43 in the forward end of the magazine 36. A split spring clip 44 encircles the tube 36, a depressed portion 46 being stamped into the clip 44 to engage the aperture 43 to retain said clip in closing position and to prevent the pellets 6 from engaging the edges of the aperture 43. The clip 44 is split to permit expansion thereat to allow the depressed portion 46 to be moved out of engagement with the aperture 43 when loading.

A ball 47 is connected to the forward end of the block 41 by a flexible connection 48 such as a spring of a sufficient length to extend upwardly through the aperture 37 to force the last pellet 6 contained in the magazine 36 into the firing chamber 3.

A light spring 49 secured in a slot 51 in the impact block 2 is downwardly bent at the forward end to normally engage a pellet 6 when forced upwardly thereagainst from the magazine 36, thereby preventing the pellet from rolling forward in the chamber 3 and admitting a second pellet 6. In this manner a pellet forced upward into the chamber 3 when the gun is cocked is held in a position to prevent the entrance of another pellet. When the firing rod 8 is released the firing pin 7 carries the pellet 6 forward to impact against the end of the chamber 3. The firing pin 7 prevents the entrance of a pellet 6 until the gun is again cocked.

The muzzle of the gun is closed except for the grooves 4 thereby preventing the firing of any missile therefrom. The grooves 4 afford an indirect passage for the escape of gases from the discharge of a pellet 6. Apertures 52 may be provided in the barrel 1 to communicate with the groove passage 4 at a point in advance of the chamber 3 thereby increasing the area of escape from gases and decreasing the muffling of the report of discharge without permitting the issuance of sparks or flame directly from the explosion of the pellet 6 such as might cause harm to the operator or persons nearby. The impact block 2 is of a strength adapted to resist the explosive force of the pellets 6.

From the above description it is readily seen that I have provided a toy gun closely simulating the appearance and report of a true fire arm but insuring against accident to the operator or persons in the vicinity.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A toy gun comprising a barrel; an impact block secured in said barrel at the muzzle end thereof; a spring actuated firing rod slidably mounted within said barrel, said firing rod having a slotted tubular portion at the rearward end thereof; a cocking bolt slidably mounted within said tubular portion for moving the firing rod to a cocked position; a plug, having a bore arranged to slidably engage the firing rod, mounted within the barrel adjacent the slotted tubular portion of said firing rod; means for independently advancing the cocking bolt from the cocked position into said tubular portion until arrested by said plug to permit independent movement of the firing rod; and means for releasing said firing rod from the cocked position to discharge an explosive pellet against the impact block.

2. A toy gun comprising a barrel; an impact block secured in said barrel at the

muzzle end thereof, said block being provided with a plurality of grooves to permit escape of gases; a spring actuated firing rod slidably mounted within said barrel, said rod having a slotted tubular portion at the rearward end thereof; a cocking bolt slidably mounted within said tubular portion; a handle extending laterally from said cocking bolt through the slotted portion of the firing rod for operating said cocking bolt to move said firing rod to a cocked position; a plug, having a bore arranged to slidably engage the firing rod, mounted within the barrel adjacent the slotted tubular portion of said firing rod; means for independently advancing the cocking bolt from the cocked position into said tubular portion until arrested by said plug to permit independent movement of the firing rod; and means for releasing said rod from the cocked position to discharge an explosive pellet against the impact block.

3. A toy gun comprising a barrel; an impact block secured in said barrel at the muzzle end thereof, said block being provided with a plurality of grooves to permit escape of gases; a spring actuated firing rod slidably mounted within said barrel, said rod having a slotted tubular portion at the rearward end thereof; a cocking bolt slidably mounted within said tubular portion; a handle extending laterally from said cocking bolt through the slotted portion of the firing rod for operating said cocking bolt to move said firing rod to a cocked position; a plug, having a bore arranged to slidably engage the firing rod, mounted within the barrel adjacent the slotted tubular portion of said firing rod; a spring mounted within the tubular portion of said firing rod to advance said cocking bolt from the cocked position into said tubular portion until arrested by the plug to permit independent movement of the firing rod; and a trigger arranged to release said firing rod from the cocked position to discharge an explosive against the impact block.

4. A toy gun comprising a barrel; an impact block secured in said barrel at the muzzle end thereof; a spring actuated firing rod slidably mounted within said barrel; means for moving said firing rod to a cocked position; a magazine mounted adjacent to the barrel and communicating therewith, said magazine being adapted to receive a plurality of explosive pellets; means for supplying one of said pellets into the barrel when the firing rod is moved to the cocked position; and means for releasing said firing rod to discharge the explosive pellet against the impact block.

5. A toy gun comprising a barrel; an impact block secured in said barrel at the muzzle end thereof; a spring actuated firing rod slidably mounted within said barrel; means for moving said firing rod to a cocked position; a magazine mounted adjacent to the barrel and communicating therewith, said magazine being adapted to receive a plurality of explosive pellets; means for supplying one of said pellets into the barrel when the firing rod is moved to the cocked position; means for preventing more than one pellet to be supplied into the barrel at each operation of the firing rod; and means for releasing said firing rod to discharge said explosive pellet against the impact block.

6. A toy gun comprising a barrel; an impact block secured in said barrel at the muzzle end thereof; a spring actuated firing rod slidably mounted within said barrel; means for moving said firing rod to a cocked position; a magazine mounted adjacent to the barrel and communicating therewith, said magazine being adapted to receive a plurality of explosive pellets; means for supplying one of said pellets into the barrel when the firing rod is moved to the cocked position; a spring mounted within the barrel to engage the pellet as moved thereinto to prevent the supply of additional pellets from the magazine prior to discharge; and means for releasing the firing rod to discharge said explosive pellet against the impact block.

7. A toy gun comprising a barrel; an impact block secured in said barrel at the muzzle end thereof, said block being provided with a plurality of grooves to permit escape of gases; a spring actuated firing rod slidably mounted within the barrel, said rod having a tubular portion at the rearward end thereof; a cocking bolt slidably mounted within said tubular portion; means for operating said cocking bolt to move the firing rod to a cocked position; a plug, having a bore arranged to slidably engage the firing rod, mounted within the barrel adjacent the slotted tubular portion of said firing rod; means for advancing the cocking bolt independently from the cocked position into said tubular portion until arrested by said plug to permit independent movement of the firing rod; a magazine mounted adjacent the barrel and communicating therewith, said magazine being adapted to receive a plurality of explosive pellets; means for supplying one of said pellets into the barrel when the firing rod is moved to the cocked position; and means for releasing said firing rod to discharge the explosive pellet against the impact block.

8. A toy gun comprising a barrel having a longitudinally arranged slot at the rearward end thereof; an impact block secured in said barrel at the muzzle thereof; said block being provided with a plurality of grooves forming passages to permit the escape of gases from said barrel; a spring

actuated firing rod slidably mounted within the barrel, said rod having a slotted tubular portion at the rearward end thereof; a cocking bolt slidably mounted within said tubular portion; a handle extending laterally from said cocking bolt through the slots provided in the barrel and the tubular portion of the firing rod to move said firing rod to a cocked position; a plug, having a bore arranged to slidably engage the firing rod, mounted within the barrel adjacent the slotted tubular portion of said firing rod; a spring mounted within the tubular portion of said firing rod to advance said cocking bolt independently from the cocked position into said tubular portion until arrested by said plug to permit independent movement of the firing rod; a magazine mounted adjacent the barrel and communicating therewith; said magazine being adapted to receive a plurality of explosive pellets; means for supplying one of said pellets into the barrel when the firing rod is moved to the cocked position; and a trigger arranged to release said firing rod from the cocked position to discharge the explosive pellets against the impact block.

In witness whereof I hereunto set my signature.

BROWN THOMAS WILLIAMS.