W. PATERSON AND G. A. RANNIE.

AIM INDICATING APPARATUS FOR FIREARMS.

APPLICATION FILED APR. 20, 1921.

1,432,254.

Patented Oct. 17, 1922.

2 SHEETS—SHEET 1.

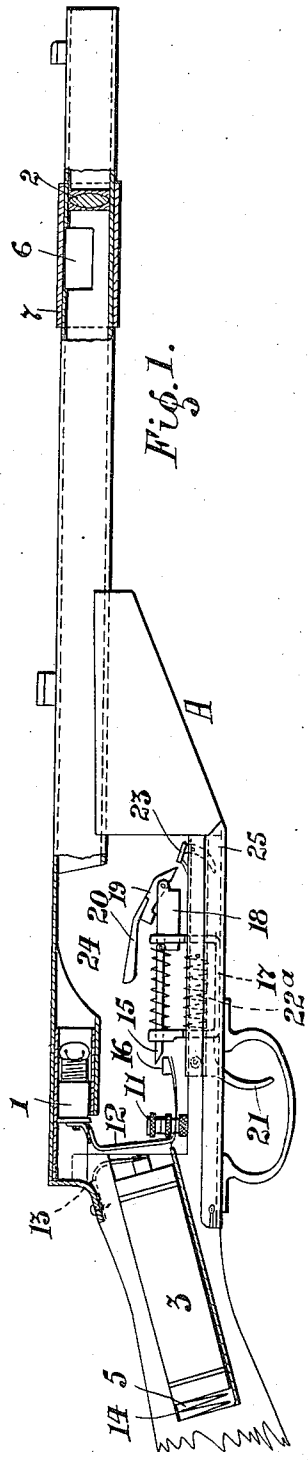


Fig. 1.

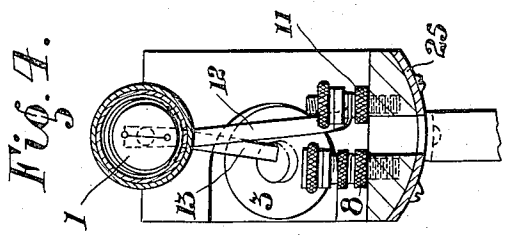


Fig. 4.

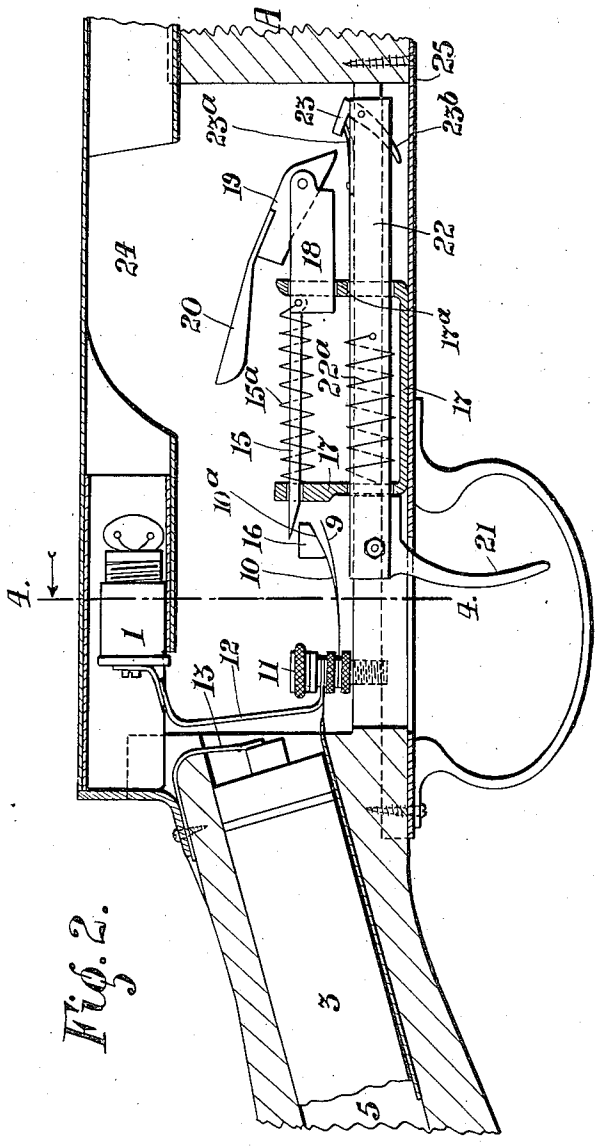


Fig. 2.

Witnesses.
Geo. Marshall Mackechnie
Agnes Morrison Watt

William Paterson & George Alexander Rannie INVENTOR
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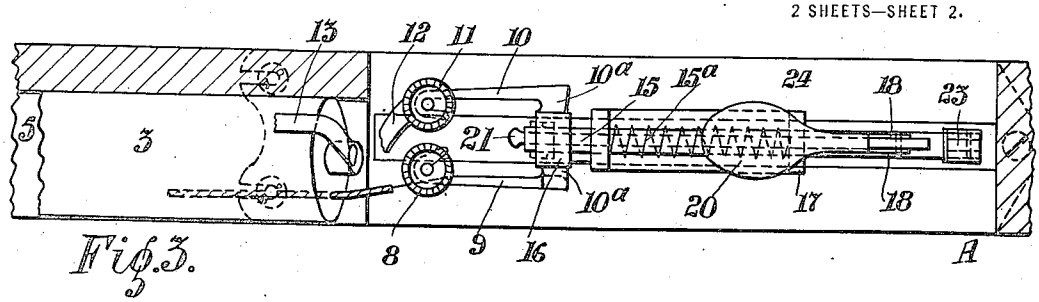


Fig. 3.

Fig. 5.

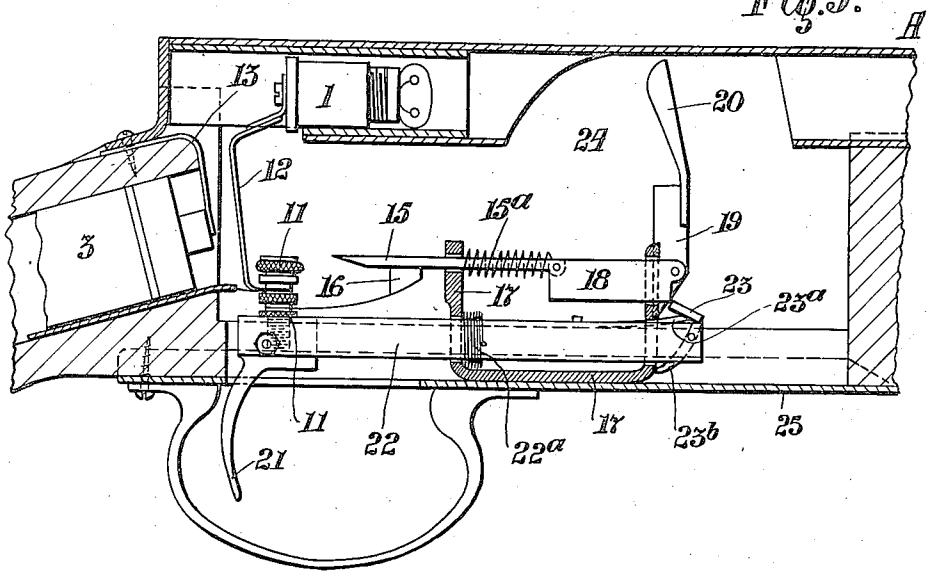
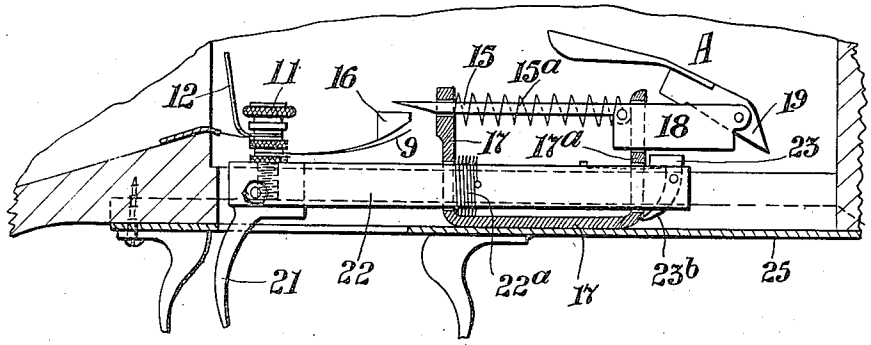


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM PATERSON AND GEORGE ALEXANDER RANNIE, OF GLASGOW, SCOTLAND.

AIM-INDICATING APPARATUS FOR FIREARMS.

Application filed April 20, 1921. Serial No. 463,091.

To all whom it may concern:

Be it known that we, WILLIAM PATERSON and GEORGE ALEXANDER RANNIE, subjects of the King of Great Britain, residing at Glasgow, Scotland, have invented certain new and useful Improvements in Aim-Indicating Apparatus for Firearms, of which the following is a specification.

This invention relates to aim-indicating apparatus for guns, rifles, pistols and the like of the kind in which an electric lamp and lens are arranged to project a ray of light on the target or object aimed at, immediately the trigger of the gun is moved to the firing position, thereby indicating, by the spot of light, the point aimed at on the target or object.

The object of the present invention is to provide an improved apparatus of this kind by means of which the aim taken will be accurately spotted at the exact time of "firing," and wherein provision is made to ensure that the spot of light will remain visible for a brief but sufficient interval of time to be properly observed.

To the attainment of this end our invention consists in an aim indicating apparatus of the character stated, having means whereby the light, after remaining visible for a predetermined interval of time, is automatically shut off independently of the position of the trigger.

The invention further consists in mechanism for closing an electric circuit to light the aforesaid lamp during the first or preliminary movement of the trigger, and a shutter arranged to obscure the rays from the lighted lamp until the trigger reaches the firing position.

According to one construction the circuit closing mechanism is constituted by a spring pressed rod slidably supported above the trigger bar and having the shutter pivotally connected thereto at its forward end so as normally, to assume a horizontal position. The rod end and the shutter are operated by a catch on the trigger bar, which catch during the backward movement of the trigger, first engages a projection on the shutter and moves the latter to an upright position in front of the lamp, and then also engages and moves the spring pressed rod to close the circuit and light the lamp. Means are provided for withdrawing the catch, when the trigger is pulled right back to fire the gun, so as to allow the shutter to fall clear of the lamp and to release the rod which then returns to its initial position under the action of the spring.

The invention is illustrated, by way of example, on the accompanying drawings forming part of this specification and whereon:—

Fig. 1 is an elevation, partly in section, of a toy gun constructed in accordance with the invention.

Fig. 2 is a fragmentary sectional elevation to a larger scale and showing the trigger and circuit closing mechanism in the inoperative position. Fig. 3 is a corresponding plan view and Fig. 4 is a cross section on the line 4—4, Fig. 2, looking in the direction of the arrows.

Fig. 5 is a sectional view similar to Fig. 2 but showing the position of the parts when the trigger is partly pulled back ready to fire.

Fig. 6 is a similar view but showing the position of the parts just after the trigger has been pulled right back to the firing position.

Referring to the drawings:—

The gun, A, is shown equipped with an electric lamp 1 and a lens 2 located in the barrel, and with a dry cell battery 3, for lighting the lamp, housed within a pocket 5 in the butt. The lens 2 is inserted in place through a slot or opening 6 made in the barrel, which opening is then closed by a sliding or telescoping cover 7.

From the battery 3 the electric circuit passes to a terminal post 8 (Fig. 3) then through switch arms 9, 10, to a second terminal post 11, thence by conductor 12 (Fig. 2) to the lamp terminal and through the filament back to the battery by way of the barrel and conductor 13. A spring 14 (Fig. 1) is inserted in the pocket 5 in rear of the battery to ensure good electrical contact between the conductor 13 and the corresponding terminal of the battery.

The switch arm 10 terminates in a bridge piece 10^a (Fig. 3) extending under the adjacent end of a rod 15 and having its end located above and normally out of contact with the end of the switch arm 9. By sliding the rod 15 backwards, it engages an insulated stop 16 on the bridge piece 10^a and forces the latter down into contact with the arm 9 thus closing the switch 9, 10.

At its forward end the rod 15, which is slidably mounted in a bracket 17, is formed

or provided with lugs or ears 18 between which is pivoted a cam piece 19 carrying a shutter 20. The cam piece, together with the shutter, normally assumes a substantially horizontal position as shown in Figs. 1 and 2.

21 indicates the rifle trigger attached to a bar 22 slidably mounted in the bracket 17 below the rod 15 so that, when pulled against the action of a spring 22^a, it actuates the shutter 20 and rod 15 through the medium of a pivoted catch 23 normally constrained to an inclined position by a flat spring 23^a. The catch 23 is made with a depending finger or toe-piece 23^b for a purpose that will be hereinafter apparent.

The switch and switch mechanism described are located in a recess or pocket 24 made in the stock of the gun and the parts are conveniently carried by a base plate 25 removably secured to the stock in suitable manner.

Upon actuating the trigger 21 the catch 23 is first brought into contact with the cam piece 19 and moves the same about its pivot bringing the shutter to an upright position in front of the lamp 1 (the barrel of the gun is cut away as shown for this purpose), thereafter the catch 23 engages the lugs 18 and moves the rod 15 to a position to close the switch 9, 10, and light the lamp. The position of the parts will then be as shown in Fig. 5 and the movement corresponds to what is commonly known as taking the first or preliminary grip or feel of the trigger. If now (assuming the marksman to have taken his final sight) the trigger is pulled right back, as in firing an ordinary rifle or revolver or the like, the toe-piece 23^b, by contacting with the front wall of the bracket 17, withdraws the catch 23 from engagement with the cam piece 19 and lugs 18, (Fig. 6), and the shutter 20 falls instantly allowing the light from the lamp to be projected along the inside of the barrel of the gun and show a small luminous spot on the object or target. The rod 15 also returns to its initial position under the action of the spring 15^a and during its return the spot remains visible so long as the rod is in contact with the switch 16, but immediately the rod is free of the switch the latter opens to break the electric circuit and cut off the light. The rod 15 is made of a length suitable to give the desired interval for the spot to be visible. When the trigger is released it returns to its original position under the action of the spring 22^a and the catch 23 also assumes its original position under the influence of the spring 23^a.

It will be apparent from the foregoing that the aim taken is accurately spotted at the exact time of firing the gun and that the spot of light remains visible for a sufficient period during the return movement of the mechanism to enable the result of the marksman's effort to be properly observed. This is a very important feature.

The invention can be applied to any kind of firearm which it may be desired to use for training soldiers and others in correct aiming and marksmanship without the use of ammunition or as a toy or otherwise.

Having now fully described our invention what we claim and desire to secure by Letters Patent is:—

1. In aim-indicating apparatus embodying a gun and an electric lamp for luminously spotting the aim taken, switch mechanism operable by the gun-trigger to light the lamp, and means for automatically shutting off the light after a predetermined time interval when the trigger is pulled.

2. In aim-indicating apparatus embodying a gun and an electric lamp for luminously spotting the aim taken, switch mechanism operable by movement of the gun-trigger to light the lamp, said mechanism comprising a slidably mounted contact-closing rod, a catch pivoted on the trigger bar adapted to engage said rod when the trigger is pulled, means for disengaging said rod upon a predetermined movement of the trigger bar, and spring means for returning said rod to its initial position.

3. In aim-indicating apparatus comprising a gun and an electrical indicating device for luminously spotting the aim taken, means including a switch in the gun for connecting said device with a source of supply of electrical energy, a slidably mounted trigger bar, a slidably mounted rod movable by the trigger bar to close said switch, means for releasing said rod when the trigger reaches the firing position, and spring means for returning said rod to its initial position to open said switch when it is released.

4. In aim-indicating apparatus comprising a gun and an electrical indicating device for luminously spotting the aim taken, means including a switch in the gun for connecting the lamp with a source of supply of electrical energy, a slidably mounted trigger bar, a rod movable by the trigger bar to make sliding contact with the switch to close the same, means for releasing said rod when the trigger reaches the firing position, spring means for returning said rod to its initial position when it is released, and spring means for returning the trigger bar.

5. In aim-indicating apparatus comprising a gun and an electric lamp and lens for luminously spotting the aim taken, an electric battery, means including a switch for connecting the lamp with said battery, a bracket, a trigger bar slidable in said bracket, a rod slidable in said bracket above said trigger bar, a catch pivoted on the

trigger-bar adapted to engage and move said rod to close the switch when the trigger is pulled, means for withdrawing said catch to release said rod when said trigger bar is in a predetermined position, and spring means for returning said rod to open the switch.

6. In aim-indicating apparatus embodying an electric lamp for luminously spotting the aim taken, switch mechanism operable by the first movement of the gun trigger to light the lamp, a shutter arranged to obscure the rays from the lighted lamp and means for withdrawing said shutter when the trigger reaches the firing position.

7. In aim-indicating apparatus embodying an electric lamp for luminously spotting the aim taken, switch mechanism operable by the first movement of the gun trigger to light the lamp, a shutter arranged to obscure the rays from the lighted lamp, means for withdrawing said shutter when the trigger reaches the firing position and means adapted to be simultaneously operated to cut off the light after a definite time interval.

8. In aim-indicating apparatus embodying a gun and an electric lamp for luminously spotting the aim taken, switch mechanism operable by the first movement of the gun trigger to light the lamp, a shutter operable by said movement to obscure the rays from the lighted lamp, means for withdrawing said shutter when the trigger reaches the firing position, and means adapted to be simultaneously operated to cut off the light after a definite time interval.

9. In aim-indicating apparatus embodying a gun and an electrical indicating device for luminously spotting the aim taken, means including a switch in the gun for connecting said device with a source of supply of electrical energy, a slidably mounted trigger bar, a slidably mounted rod movable by said trigger bar to close said switch, a shutter pivoted on said rod and operated by the first movement of said trigger bar to obscure the rays from the lamp, means for releasing the shutter when said trigger bar reaches the firing position, and means for simultaneously releasing and returning said rod to its initial position to open the switch.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM PATERSON.
GEORGE ALEXANDER RANNIE.

Witnesses:
EDITH MARY ROLLO,
STANLEY DUNLOP.