

March 15, 1966

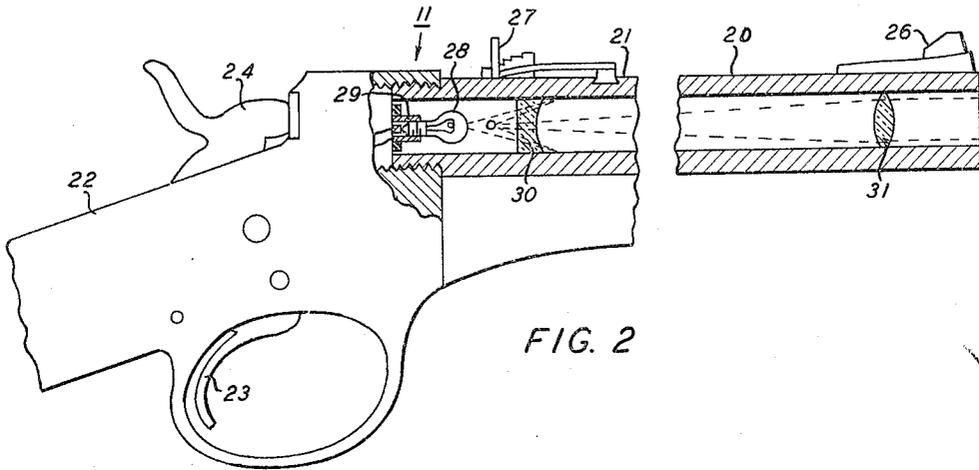
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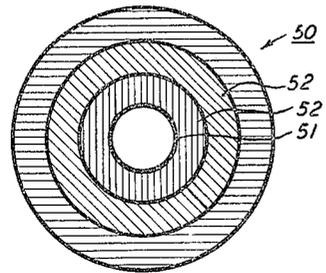
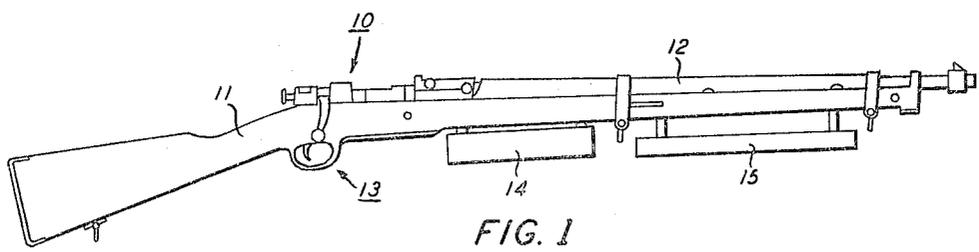
TARGET GUN

Filed May 16, 1962

2 Sheets-Sheet 1



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 ✓ X250.



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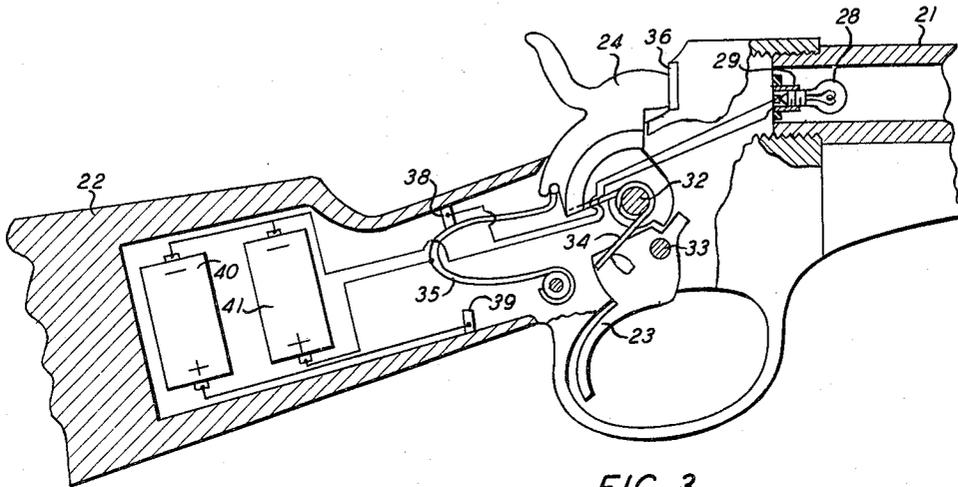


FIG. 3

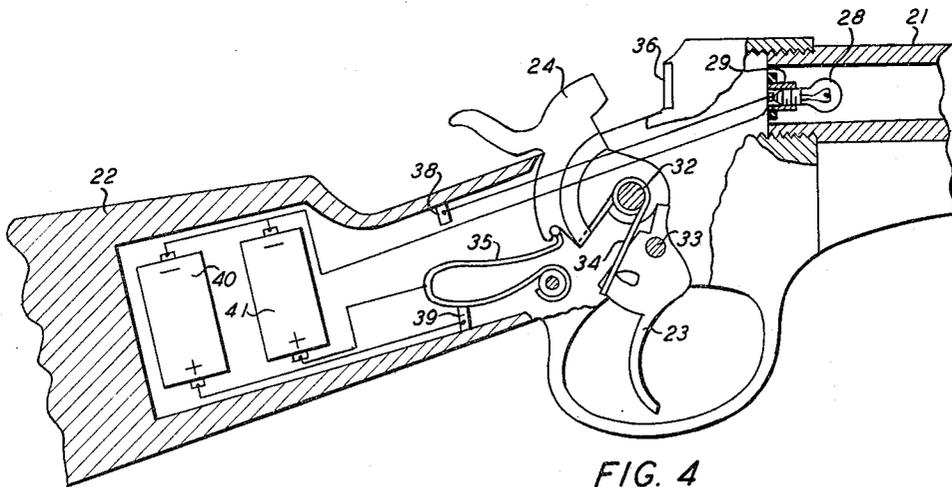


FIG. 4

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TARGET GUN

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Filed May 16, 1962, Ser. No. 195,241  
2 Claims. (Cl. 240—10.62)

This invention relates in general to a gun, and in particular to a gun such as a toy gun or a gun for target practice.

In the diverse fields of adult or military target practice and of children's toys there is a common need for a gun combining the characteristics of safety, accuracy and suitability for target scoring. In the one field of use, such as military target practice the need for accurate scoring, optionally combined with record keeping, has almost invariably required the use of heavy duty ballistic weapons. At the other extreme, the danger of real guns in children's hands has prohibited even light ballistic guns such as pellet-shooting air guns. The common need exists, therefore, for a gun, optionally together with a target, which is safe yet exciting for children while being accurate and reliable for adult and military target use.

An object of this invention, therefore, is to provide a gun which is suitable for children's use.

Another object of this invention is to provide a gun, or an attachment for a gun, which is of sufficiently serious purpose to qualify for target practice.

A further object of the invention is to provide a gun operating with a visible pulse of light to simulate the effect of a bullet striking a target.

Other objects of the invention are, in part, obvious and, in part, apparent in the following description and in the drawings, in which:

FIG. 1 is a side view, partially diagrammatic, of a gun according to one embodiment of the invention;

FIG. 2 is a fragmentary side view, partially in section, according to another embodiment of the invention;

FIG. 3 is a side section of gun mechanism of the embodiment of FIG. 2, illustrated in the closed position;

FIG. 4 is a view of the mechanism of FIG. 3, taken in the open or cocked position; and

FIG. 5 is a view of a target suitable for use in connection with the devices of FIGS. 1 through 4.

In the figures are shown illustrative guns for military or other adult use, as in the embodiment of FIG. 1, and a toy device as in FIGS. 2, 3, and 4. In FIG. 1 is illustrated a rifle, generally designated 10, comprising a stock 11 having a barrel 12 mounted thereon in conventional manner. Suitable trigger mechanism, generally designated 13, may be operatively connected to fire live ammunition from the gun. In an illustrative embodiment of the gun according to this figure, a conventional 22 caliber hunting rifle may be employed without disconnecting or otherwise interfering with the operation of the firing mechanism.

Mounted on the gun is a power pack 14 and a light barrel 15 operating as will be hereinafter described to project a pulse of light directly in the path in which the gun is aimed. Illustratively, there may be employed a conventional power pack 14 from a photographer's "Strobe" light, and a modified "Strobe" light barrel 15 as illustrated in FIGS. 2 to 4.

In FIG. 2 is illustrated diagrammatically a gun, designated 20 having a light barrel 21 mounted on a stock 22. A trigger 23 operates a hammer 24 in the usual manner. Mounted conventionally outside the barrel are a front sight 26 and a rear sight 27.

Inside the barrel is a light projection system including a light source 28 such as a flashlight bulb in a socket 29 positioned a short distance behind a plano-concave lens 30 at the rear portion of the light barrel. Toward the

2

front of the barrel, and preferably just inside the front end, is a second lens 31, mounted and adjusted in combination with the first lens and light source so as to project a nearly parallel beam of light in the direction the gun is aimed.

In the embodiment illustrated in FIG. 2, lens 30 is a negative lens with an approximate focal length of -20 mm., and lens 31 is a positive lens with an approximate focal length of +340 mm. Lamp 28 is about one inch behind lens 30 and the two lenses are about 13 inches apart. At 20 feet distance the system projects a circular spot of light about 1/2 inch in diameter.

In FIGS. 3 and 4 are illustrated operative connections of the trigger mechanism to the light source 28. The mechanical structure of the trigger mechanism is conventional and, in fact, is part of a children's toy gun such as may be purchased in any toy or hobby shop under the trade name of a leading toy manufacturer. Generally, a hammer 24 is pivoted on a pin 32 and movable into a releasable locked or cocked position in engagement with a trigger 23 which in turn is pivoted on pin 32. A spring 34 mounted on pin 32 is adapted to return the trigger to the ready position. A second spring 35 is positioned to snap the hammer forward. In a toy gun a cap receptacle 36 is positioned to receive the hammer; in a cartridge-firing gun, as illustrated in FIG. 1, conventional breech mechanism is operatively positioned to receive the hammer. Conductive posts 38 and 39 are operatively positioned adjacent the spring 35, upper post 38 contacting the spring 35 in the closed or fired condition as illustrated in FIG. 3, and lower post 39 contacting the same spring 35 in the ready or cocked position as illustrated in FIG. 4.

Conveniently mounted on the gun, as for example, within the stock, are a power source 40 and a capacitor 41. In the embodiment illustrated, there were employed a 22 1/2 volt photoflash battery, as the power source, a 25 volt, 350 mfd. capacitor and a G.E. 425 lamp having a rating of 5 volts and 0.5 amp. This combination is adapted to produce a pulse of light of approximately 1/5 second duration. The pulse should be short enough to prevent zeroing in on the target during a shot. The photographer's "Strobe" flash unit illustrated in FIG. 1 is adapted to produce a brilliant pulse of light, judged to be about 2 milliseconds in duration.

As mounted in the gun 11, a common negative terminal of power source 40 and capacitor 41 is connected directly to the outside terminal of socket 29. The inside terminal of socket 29 is connected to upper conductive post 38, and the positive terminal of capacitor 41 is connected to spring 35. The positive terminal of battery 40 is connected to lower conductive post 39. Thus, in the ready or cocked condition as shown in FIG. 4, capacitor 41 is charged, and in the fired position shown in FIG. 3 the capacitor is unloaded through lamp 28. Similarly, in the device illustrated in FIG. 1, the contact pins (not shown) of power supply 14 are connected to, and unload through, the "strobe" lamp (not shown) of light barrel 15 upon contact of spring 35 (as in FIG. 3).

In one embodiment of the invention, as with the "strobe" flash apparatus of FIG. 1, the light pulse is of sufficient intensity to show up clearly in a dimly lighted room. When, however, a simple flashlight bulb is employed, as illustrated in FIGS. 2 to 4, a combination of gun and target is employed.

FIG. 5 illustrates such a target. A target base, generally designated 50 has separate target areas delineated on its surface. These areas, as shown in the figure, may be a simple bull's-eye target, having a central spot or bull's-eye 51 and a plurality of target rings 52 surrounding the center. Alternatively segmented as may be employed marked with suitable identification for scoring.

In one embodiment, the target surface is a single color, marked into areas, whereas in other embodiments the target surface consists of different colored areas such as a white or colorless bull's-eye, surrounded by a pattern of different colored ring areas. Such coloring is found to be an aid to identifying which target areas are hit.

In any case, a preferred target surface comprises a very highly reflective surface, or a luminescent type paint or, preferably, a glass bead surface. One suitable target surface comprises a reflective glass bead layer on a support base having a pressure sensitive adhesive, and is available under the name "Scotchlite." A white reflective sheeting under the name "Scotchlite" 246 "C" White has been found to have brilliant reflectance in a direction perpendicular to its surface, and is understood to be about 200 times brighter than white paint. A hit on a target of this material is visible to the marksman at distances at least up to 100 feet.

It is to be understood that the gun is operative without the target provided the light source is strong enough. For example, the beam of a flashlight battery projects a visible spot on a white panel in a dimly lighted room; the beam from a photographer's stroboscopic unit is visible in the absence of special target surfaces and even in relatively bright ambient light. Furthermore, the projected beam of the stroboscopic light source can record a spot on a target comprising photographic paper.

If desired, accessory mechanisms may be incorporated in the gun, either to promote realism in a children's toy or to simulate the effect of ballistic projectiles in an adult target device. For example, a mechanical recoil mechanism can be connected to trigger 23, or a relay operated recoil device may be initiated by discharge of capacitor 41. Similarly, a noise-maker such as cap, a blank cartridge or other device may be operated by hammer 24, particularly inasmuch as the hammer mechanism is not devoted to pulsing the light. Telescopic sights may be used, but in such condition the optical system should be focused for long range imaging. Likewise numerous mechanical or functional modifications may be made in the pulsing circuits to pulse by means of relays, mercury switches, cams or by a combination of an introduced short in a resistor-capacitor system. Also, other optics may be substituted for the lens system of FIG. 2. These and other modifications are understood to be within the scope of the invention.

What is claimed is:

1. A simulated gun comprising means for producing a short duration pulse of light, means for projecting said pulse of light in a substantially parallel beam outwardly from the gun, trigger means for simulating the trigger action of a gun, and firing means responsive to said trigger means and operatively connected to said pulse producing means and including spring means for driving the firing means from a cocked to a fired position; said producing means including a bulb, an electrical power source, a capacitor, and switch means for selectively electrically connecting said source to said capacitor and said capacitor to said bulb to energize said bulb only for the duration of discharge of said capacitor; said spring means being a part of said switch means and having an electrical connection to one side of said capacitor, said switch means including first contact means electrically connected to said power source and positioned to contact said spring means only when said firing means is in its cocked position, and second contact means electrically connected to said bulb and positioned to engage said spring means only when said firing means is in its fired position, for effecting said selective connecting operation in response to said trigger action.

2. A simulated gun as set forth in claim 1, wherein said simulated gun has a barrel, said bulb is an incandescent bulb positioned in said barrel, and said power source is a battery, said battery and said capacitor being carried in said simulated gun.

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