

②

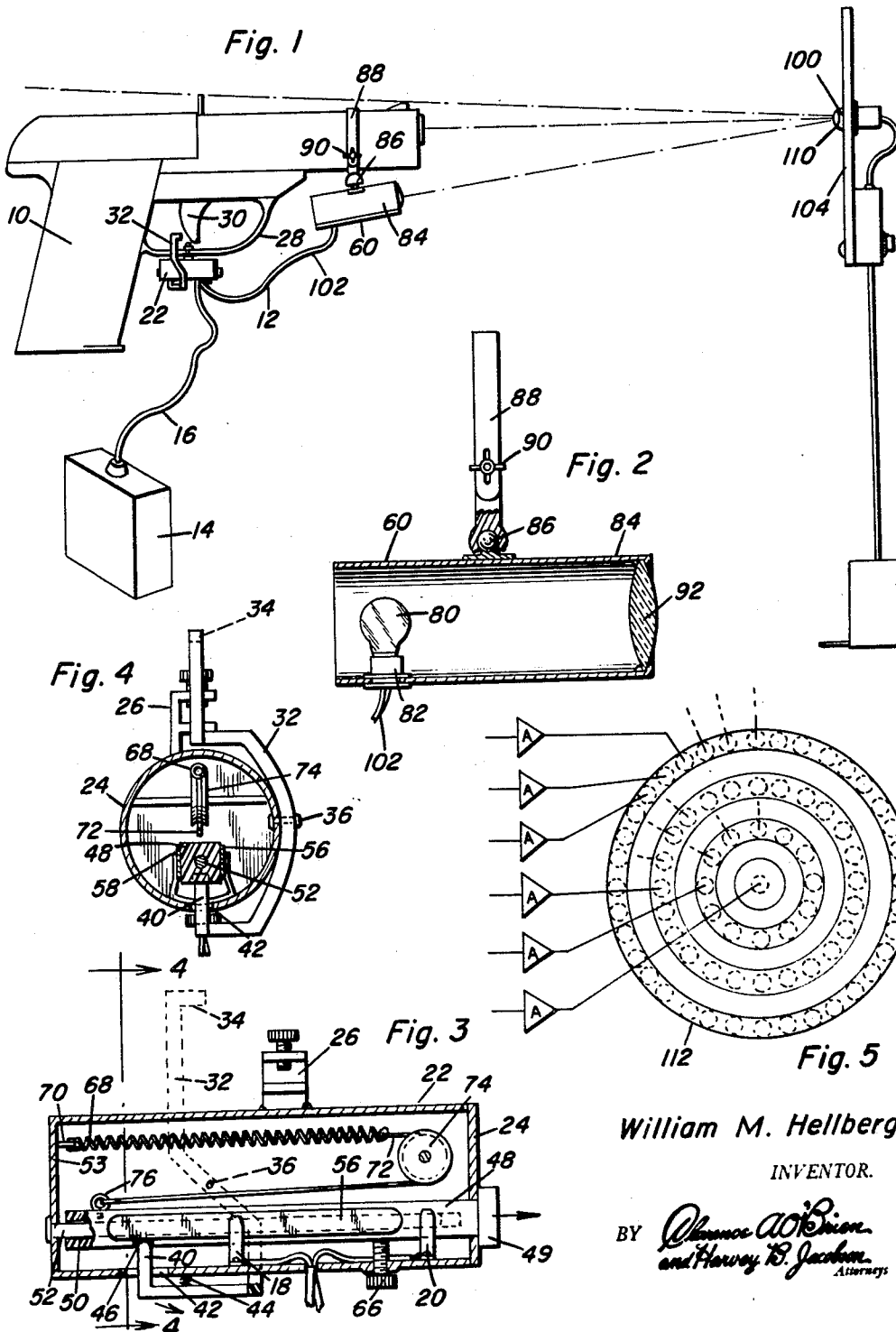
April 26, 1960

W. M. HELLBERG

2,934,634

GAME AND PRACTICE ATTACHMENT FOR A GUN

Filed July 9, 1957



HT 2452
✓ X356

William M. Hellberg

INVENTOR.

BY *Alfonso A. O'Brien*
and *Harvey B. Jackson*
Attorneys

1

2,934,634

GAME AND PRACTICE ATTACHMENT FOR A GUN

William M. Hellberg, Kansas City, Mo.

Application July 9, 1957, Serial No. 670,796

2 Claims. (Cl. 240—2)

This invention relates to a practice and/or amusement device and more particularly to a device of the type which employs a light ray and a photo cell or other light sensitive target.

An object of the invention is to provide a light source for a gun or simulated gun with means for delaying the time during which the light remains illuminated after pulling the trigger. This is achieved by providing a light source on the barrel or other convenient part of a firearm. A switch is connected with the firearm and arranged to be operated by the trigger as it is pulled. Therefore, since the trigger is arranged to operate the light source switch and a time delay device, the light remains on so that the firing of the gun is a continuing operation allowing sufficient time to actuate the photo cell target.

The invention will permit the average hunting enthusiast or target shooter to practice shooting at a stationary target with the actual firearm used being one which either simulates or which is the actual gun or other type of firearm that he uses.

Accordingly, it is one of the primary objects of the invention to provide an attachment for an ordinary firearm which temporarily converts that ordinary firearm to a game or practice device. This is achieved by a special target which is photo cell actuated in response to a light ray, together with attachments for the trigger guard of the firearm and the barrel. The barrel has a source of illumination attached to it, as by a clamp, while the trigger guard has a time delay switch enabling the light source carried by the barrel to remain illuminated for a period of time sufficient to assure the actuation of the photocell target.

A further object of the present invention is to provide a novel time delay switch which is operated by the trigger of the firearm. The trigger moves a switch trigger enabling a spring to move a switch contactor through the switch on to the switch off position. The rate at which the contactor moves is adjustable by a frictional device so that the time for the complete switch cycle is regulatable.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is an elevational view of a typical firearm provided with an attachment in accordance with the invention and a target with which the firearm is adapted to be used after having been converted to an amusement or practice device;

Figure 2 is an enlarged sectional view of a typical source of illumination for use on the firearm;

Figure 3 is a longitudinal sectional view of the time delay switch which is adapted to be attached to the trigger guard of the firearm;

Figure 4 is a transverse sectional view taken on the line 4—4 of Figure 3; and

2

Figure 5 is an elevational schematic view of the target.

In the accompanying drawing there is a firearm 10 which typifies any kind of portable firearm. This firearm is converted to an amusement device or may be initially an amusement device. In either use of the invention, the attachment 12 will be essentially the same. The attachment is constructed of a source of electrical energy, for example a battery case 14 from which cable 16 extends. This cable may be of indefinite length and is operatively connected with contacts 18 and 20 in the time delay switch 22.

Switch 22 is constructed of a housing 24 that has a C-clamp 26 secured to one of its walls. The C-clamp is small and is capable of being attached to the trigger guard 28 of the firearm 10 and near trigger 30. Lever 32 having a trigger contacting stop 34 at the upper end, is pivoted at 36 to the side of the housing 24. The lower end of the lever forms a pin 40 that passes through an opening 42 in the lower wall of housing 24. Spring 44 opposes the pivotal movement of the lever 32 in one direction and functions to return the pin 42, pushing it into notch 46 on contactor 48.

The contactor is in the form of an electrically insulating rod 48 which has a reset button 49 at its outer end and a bore 50 which opens through its inner end. Guide 52 is attached to end wall 53 of housing 24 and passes into the bore 50. Two electrically insulating plates 56 and 58 respectively are adhered to the sides of the contactor 48 and they are adapted to be touched by contacts 18 and 20.

The contacts 18 and 20 are generally U-shaped and are resilient. They are attached to the bottom of the housing and have the wires of cable 16 connected to them. The length of conductive plates 56 and 58 is such and the spacing of contacts 18 and 20 is such that when the contactor is in the rest position (Figure 3) current will not flow to the light source attachment 60 (Figure 2). But, when the contactor 48 moves forward the plates 56 and 58 bridge the contacts 18 and 20 enabling current to flow. However, when the contactor moves forwardly sufficiently far, contact 18 becomes separate from the two plates 56 and 58 thereby again opening the circuit. The time required to have the contactor 48 complete such a cycle of operation is adjustable by setscrew 66. The setscrew is threaded in an opening in a part of the housing 24 and bears against a surface of the contactor 48. By tightening the setscrew, the speed of operation of the contactor 48 is changed.

The means for propelling the contactor consist of a spring 68 that is attached at one end to an anchor 70 on wall 53 of housing 24. The other end of the spring is attached to a string or cable 72 which is entrained over a guide pulley 74 carried in the housing 24. The opposite end of the string or cable is attached to an eye 76 secured to the contactor 48. Therefore when the reset button 49 is pushed inwardly of housing 24, the spring 68 is tensioned. The pin 40 drops into notch 46 thereby preventing the contactor 48 from moving until the trigger 30 of the firearm is pulled. Then, the lever 32 is rocked thereby separating pin 40 from notch 46 and enabling the contactor 48 to slide forward due to the force of spring 68.

The source of illumination is a light bulb 80 carried by socket 82 in tube 84. The tube is connected by a ball and socket connector 86 to a clamp 88. The clamp has a wing nut 90 and bolt for securing unit 60 to the barrel of the firearm 10. However, the unit 60 can be adjusted because of its ball and socket connector 86. A focusing lens 92 is at the end of tube 64 and it functions to converge the rays of light from the source of illumina-

3

tion 80 onto target 100. Socket 82 is connected by wiring and cable 102 which extends from the contacts 18 and 20 of time delay switch 22.

Target 100 is largely schematically represented. It uses standard circuitry and is made of a panel 104 on which a bull's eye 110 is attached. The bull's eye may be in the form of concentric rings 112 behind which there are photocells. The photocells are each connected to amplifiers so that a scoring arrangement may be operatively connected in the system. Another alternative would be to use one photocell at the center of the bull's eye with a variable density light transmissive panel over the bull's eye. The center that is directly in front of the bull's eye, would be either cut away or transparent with the opacity of the panel increasing with the distance from the transparent center of the panel. A detection circuit to sense the position of the light rays with respect to the center could be used in conjunction with the direct hit light amplifier at the bull's eye. All of the circuitry necessary to operate the bull's eye and other target components is schematically shown in Figure 5.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An attachment for a firearm to convert the firearm into an amusement or practice device, said attachment comprising a source of illumination, means to attach said source of illumination to the firearm, said firearm including a trigger and a trigger guard, a time delay switch, means attaching said time delay switch to the trigger

4

guard, said time delay switch including a housing, a pair of spaced contacts in said housing, an operating lever extending from said housing and located in the path of travel of the trigger, a source of electrical potential, an electric circuit wire extending from said source to one contact of said time delay switch and another wire extending from the other contact of said time delay switch to said source of illumination, a contactor movably mounted in said housing, said spaced contacts having surfaces in the path of movement of said contactor, means engaging said contactor for constraining the path of movement of said contactor to require the contactor to bridge said pair of contacts by engaging said surfaces during the movement of said contactor, means actuated by said lever for retaining said contactor in a rest position until released by actuation of the firearm trigger, resilient means connected with said contactor to propel said contactor in response to release of said contactor retaining means, and adjustment means connected with said contactor to adjust the rate of travel of said contactor.

2. The combination of claim 1, wherein said resilient means include a spring in said switch housing, means anchoring one end of said spring, means connecting the other end of said spring to said contactor and arranged to hold said contactor under a constant spring load until said lever is actuated to release said contactor at which time said spring propels said contactor in said housing.

References Cited in the file of this patent

UNITED STATES PATENTS

1,699,595	Lamont	Jan. 22, 1929
1,923,531	Florez	Aug. 22, 1933
1,993,979	Reed	Mar. 12, 1935
2,710,754	Varney	June 14, 1955