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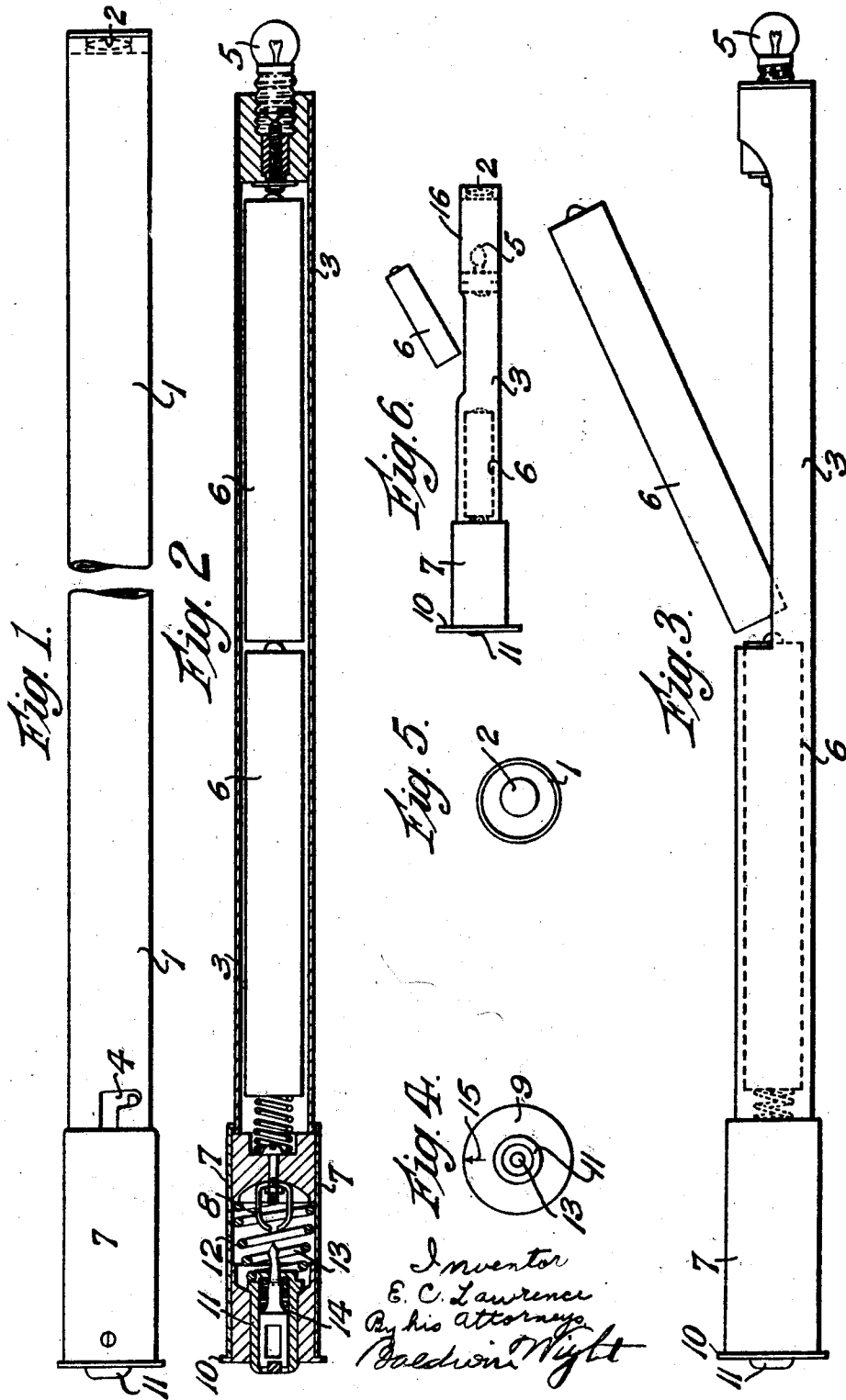
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LIGHT PROJECTING DUMMY CARTRIDGE FOR SMALL ARMS

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## UNITED STATES PATENT OFFICE

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## LIGHT-PROJECTING DUMMY CARTRIDGE FOR SMALL ARMS

Application filed November 2, 1929, Serial No. 404,453, and in Great Britain May 13, 1929.

The invention relates to an improved means of practising shooting with small arms and is mainly intended for shot guns, and it consists in a self-contained light projecting dummy cartridge which can be loaded into the chamber and bore of a sporting central-fire shot gun and used in the same manner as an ordinary cartridge with ordinary actions of aiming and firing. The gun can thus be used for practice indoors or for enabling the gun fitter to determine the accuracy of aim, and to discover faulty fitting.

Referring to the drawings which show an embodiment of the invention applied to a shot gun, Figure 1 is a plan showing an external view of the cartridge; Figure 2 is a sectional elevation the outer tube being detached; Figure 3 is a view showing the mode of inserting a battery cell into the inner tube; Figure 4 is a rear view; Figure 5 is a front view showing the lens; and Figure 6 shows a modified construction.

The cartridge consists of a metal tube 1, Figure 1, of a diameter enabling it to be inserted through the breech of the gun and to fit easily but not loosely in the bore. At the front end is a small projecting lens 2. Within this tube is slidably fitted another tube 3 adapted to be secured to the first tube by a bayonet or other suitable joint 4. This inner tube carries at its front end on an insulated mounting of the usual kind, an ordinary flash-light electric lamp 5, in rear of which is a dry battery preferably consisting of two long thin cells 6, 6, in series. The inner tube is partly cut away as shown in Figure 3 to enable the cells to be inserted. At the breech end of the inner tube, and preferably projecting outside the outer tube so as to fill the chamber of the gun is attached a hollow tubular extension 7 about the length of an ordinary cartridge. Within this extension is carried on an insulated mounting a contact piece 8, preferably forked, which is adapted for connection to the rear pole of the battery. The extension is closed at the breech end by a plug 9 provided with a flange 10 to fit in the usual recess provided for the cartridge flange. The plug carries a slidable sleeve 11 which is forced towards the breech by a

spring 12 so that its rear end normally projects beyond the rear face of the plug, and within the sleeve is a contact-making pin 13 also pressed towards the breech by a spring 14 inside the plug. Normally, the rear ends of the pin and of the sleeve are flush with one another.

When the cartridge is inserted into the barrel of the gun and the breech closed, the sleeve and the pin are caused to come flush with the rear face of the plug, and the contact pin is brought by the inward movement of the sleeve within reach of the contact fork, or like device, but not so near as actually to make contact. When, however, the action of firing the gun is performed, the contact pin is driven in still further by the firing pin of the gun. The lamp now lights and illuminates the spot at which the gun is pointed. On opening the breech the sleeve resumes its normal position, taking the contact pin with it and breaking the circuit. The contact pin is preferably provided with a plug to protect the striker of the gun.

Preferably, the projecting lens is fixed eccentrically to the outer tube as shown in Figure 5 so as to allow for the usual want of alignment between the rib and the line of the bore of the gun. In this case it is necessary always to insert the cartridge in the same position, for which purpose the cartridge is provided with a mark, such as an arrow at 12 o'clock as shown in Figure 4. Any other indicating means may be used as the construction of the gun may require.

Figure 6 shows a modification adapted specially for small bore guns. In this form the outer sliding tube 1 is dispensed with, both the lens and the lamp being carried by the tube 3 which is produced beyond the lamp as shown at 16 in order to carry the lamp 5. In this case one of the battery cells is always exposed. The lamp and its holder are inserted through the battery opening and are held in position by suitable stops.

I claim:—

1. A dummy cartridge for small arms adapted for insertion in the breech thereof comprising an inner tube carrying an electric glow lamp, and electric battery and electric

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5 contact means adapted to light the lamp when struck by the firing pin of the small arm, and an outer tube adapted to slide on the inner tube carrying a projecting lens in front of the lamp in such a location as to project a beam from the lamp along the barrel.

10 2. A dummy cartridge for small arms adapted for insertion in the breech thereof comprising an electric glow lamp, an electric battery and a lens in front of the said lamp adapted to project a beam from the lamp along the barrel of the small arm, and electric contact means comprising a sleeve sliding in the rear end of the cartridge and normally projecting therefrom under the action of a spring, a contact pin sliding in the said sleeve having its rear end normally flush with that of the sleeve, both pin and sleeve being caused to come flush with the rear end of the cartridge when the breech is closed and the pin being adapted to close the lamp circuit through a contact piece when the action of firing is performed.

25 3. A dummy cartridge for small arms adapted for insertion in the breech thereof comprising an inner tube carrying an electric glow lamp, an electric battery and electric contact means adapted to light the lamp when struck by the firing pin of the small arm, and an outer tube adapted to slide on the inner tube carrying a projecting lens in front of the lamp in such a location as to project a beam from the lamp along the barrel, in which the said contact means comprises a sleeve sliding in the rear end of the cartridge and normally projecting therefrom under the action of a spring, a contact pin sliding in the said sleeve having its rear end normally flush with that of the sleeve, both pin and sleeve being caused to come flush with the rear end of the cartridge when the breech is closed and the pin being adapted to close the lamp circuit through a contact piece when the action of firing is performed.

40 4. A dummy cartridge for small arms adapted for insertion in the breech thereof, comprising an electric glow lamp, an electric battery, and a lens in front of the said lamp having its optical axis set eccentrically to the longitudinal axis of the cartridge and adapted to project a beam from the lamp along the barrel of the small arm, and electric contact means mounted in the breech end of the cartridge adapted to light the lamp when struck by the firing pin of the small arm.

50 5. A dummy cartridge for small arms adapted for insertion in the breech thereof comprising an inner tube carrying an electric glow lamp, an electric battery and electric contact means adapted to light the lamp when struck by the firing pin of the small arm, and an outer tube adapted to slide on the inner tube carrying a projecting lens in front of the lamp in such a location as to project a

beam from the lamp along the barrel, the optical axis of the projecting lens being set eccentrically to the longitudinal axis of the cartridge.

6. A dummy cartridge for small arms adapted for insertion in the breech thereof comprising an inner tube carrying an electric glow lamp, an electric battery an electric contact means adapted to light the lamp when struck by the firing pin of the small arm, and an outer tube adapted to slide on the inner tube carrying a projecting lens in front of the lamp in such a location as to project a beam from the lamp along the barrel, in which the said contact means comprises a sleeve sliding in the rear end of the cartridge and normally projecting therefrom under the action of a spring, a contact pin sliding in the said sleeve having its rear end normally flush with that of the sleeve, both pin and sleeve being caused to come flush with the rear end of the cartridge when the breech is closed and the pin being adapted to close the lamp circuit through a contact piece when the action of firing is performed, the optical axis of the projecting lens being set eccentrically to the longitudinal axis of the cartridge.

In testimony that I claim the foregoing as my invention I have signed my name this 17th day of October, 1929.

ERNEST CHARLES LAWRENCE.

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