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shooting range for rifle and revolver practice.

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fig. 4.

fig. 5.

fig. 6.

fig. 7.

fig. 8.

fig. 10.

fig. 11.

witnesses.

Geo. Palmer

J. Paterson

inventor.
To all whom it may concern:

Be it known that I, JAMES PATERSOON, a subject of the King of England, residing at Kennington, London, England, have invented certain new and useful Improvements in Shooting-Ranges for Rifle and Revolver Practice, of which the following is a specification.

This invention relates to ranges for shooting practice in which a cinematographic or animated picture forms the object to be fired at, and in which means are provided for automatically indicating at the firing point when a particular part of the picture has been hit.

The invention refers particularly to ranges comprising representations of living and moving objects projected on to a screen, a traveling metal target arranged behind the said screen, and a hit recording device at the firing point.

My invention consists essentially in the construction, arrangement, and combination of parts hereinafter described and shown in the accompanying drawings.

Figure 1 is a front elevational view of a shooting range constructed and arranged in accordance with this invention. In this instance the representation of a soldier on one knee firing forms the object to be fired at. Figs. 2 and 3 represent respectively the relative appearances of the figure to be fired at when it has advanced or retired from the position shown in Fig. 1. Assuming the distance of the figure from the firing counter as represented in Fig. 1 to be 200 yards, the figures as shown in Figs. 2 and 3 would respectively represent ranges of 100 yards and 500 yards. Fig. 4 in front elevation and Fig. 5 in side sectional elevation illustrate a form of target particularly adapted for use with a cinematographic picture representing the movements of a scout as depicted in Figs. 1, 2, and 3, and which, placed behind the screen, is moved synchronously with the figure of the scout, and upon being struck by a bullet operates the indicator at the firing point. Figs. 6, 7, and 8, are front elevational views of targets representing respectively a "moving convoy", "moving cavalry", and some "scouting cyclists", and which are especially suitable for use with a picture wherein the moving objects travel from side to side across the screen. Fig. 9 is a representation of a cinematographic picture wherein a convoy is depicted crossing a plain, a part of such picture being broken away to show the moving target of the type illustrated in Fig. 6. Fig. 10 is a front elevational view of the indicating and totaling apparatus made use of at the firing point in a range fitted in accordance with this invention, and Fig. 11 is a similar view of the device with the front cover removed to show the registering dials.

In the general view, Fig. 1, the firing counter is indicated by the letter A. The projector is marked B and the screen upon which the picture is projected is marked C. This screen C is of paper or other suitable material or fabric to permit of the passage of a bullet therethrough and is mounted either in a framework of metal or wood from which it may be easily removed when worn and a new screen inserted; or it may be mounted upon rollers from which a portion of it is unwound when a new surface is desired to be presented.

The illustration depicts the marksman returning the enemy's fire, a cinematograph picture of a scout supposed to be at a distance of 200 yards, in this instance, representing the enemy. As the cinematograph films are unwound the scout appears to advance or retreat. In the former case appearing in the foreground of the picture, as shown in Fig. 2, and in the latter taking up a position at the back as shown in Fig. 3. The relative sizes of the picture of the scout in these figures as compared with that seen in Fig. 1 (which as aforesaid is assumed to be 200 yards) represent respectively ranges of 100 yards and 500 yards. A metal target corresponding in form to the moving figure in the picture and of the type illustrated in Figs. 4 and 5 is mounted behind the screen C. Fig. 1 and is caused to move synchronously with the figure in the picture. The moving metal target is in electrical communication with the indicating device D at the firing point. The indicating device is shown separately in Figs. 10 and 11. Upon the figure fired at being hit the bullet passes through the screen C and strikes the metal target which is thereby operated to automatically record the shot upon the indicator D; while by the use of an indicating device of the form shown the number of hits made are totaled and the full score obtained is registered, and may be seen at a glance.

To effect the required movement of the metal target behind the screen to corre-
spond with the movements of the scout in the picture the said target is affixed to wires or cords which pass over or around suitably arranged pulleys to the firing point where by means of a handwheel the target is moved by the attendant to suit requirements. The target is kept in register with the moving figure to be fired at by keeping the arrow heads E provided upon the target or on the traveling wires or cords, in line with the center or other given part of the moving figure during operations.

The metal targets illustrated in Figs. 6, 7, 8, and 9, are of a form adapted for use in combination with a kinematoscope picture wherein the movements of the figure or figures to be fired at are from side to side of the picture. These targets are similarly provided with projecting arrow heads E by which they may be kept in register with the moving figures, while they may be caused to travel from one side of the picture to the other by wires or cords passing over or around pulleys similarly to the manner described with reference to Figs. 4 and 5.

The target shown in Figs. 4 and 5 is adapted for the purposes of this invention when provided with the register indicating device and connected to traveling wires or cords passing around pulleys to a winding gear at the firing point. The face F of the target, in outline, is of a configuration corresponding to the figure to be fired at and is divided into a series of sections G. Each section G is dished and has its sides converging to the center of such section. The target is bored through at the centers H of the sections, and bolts or strikers I are mounted in such centers (see particularly Fig. 5). The dishing of the sides of each section deflects those bullets which hit the target in any particular section but do not directly hit the bolt I of the section, on to the end of the striker which on being struck is caused to travel in the guides J and its rear end completes, by contact, an electric circuit which operates the indicator D at the firing point. The bolts or strikers I are returned after displacement to their normal positions by means of springs K or their equivalents.

Targets of the above described and known type are rendered applicable for ranges for shooting practice of the description to which my invention refers by the combination therewith of means for causing such targets to traverse the picture (behind the screen upon which the picture is shown) synchronously with the moving object to be fired at, and of means for keeping the target in register with the said moving object. These means I will now describe: To obtain the movement necessary to keep the target in juxtaposition with the moving figure in the picture to be fired at the target is connected to wires or cords L which are passed over or around suitably arranged pulleys and led to the firing point where they are operated from a handwheel by the attendant. As a means of indicating that the moving target is in register with the moving object in the picture to be fired at, wire or other brackets supporting arrow heads E bent over to overlap the edges of the picture are fitted to targets having an up and down movement. By keeping the said arrow heads E, as the figure moves, in a line with a predetermined part of the moving figure the target is maintained at the same level as the said figure. With targets having a side to side movement, as illustrated in Figs. 6, 7, 8, and 9, the register indicators E are arranged at the bottom of the targets. The faces F of these targets correspond with the moving figures of the picture and are dished or recessed similarly to the target shown in Figs. 4 and 5 with the sides of the recesses G converging to a central bore H in which is mounted the contact making bolt above described. Movement is communicated from the firing point by means of wires L passing around pulleys in a manner similar to that above explained with regard to Fig. 4.

The indicator for recording successful hits is shown in Figs. 10 and 11, and consists of a series of disk dials M mounted in a casing N, each capable of a step-by-step revolving motion. A separate dial is provided for each different range. The dials are numbered at or near their edges with consecutive numbers (see Fig. 11) one of which appears at a time through apertures made in the front cover of the apparatus, as seen in Fig. 10. These dials M are electrically operated when the target is struck, and revolving step by step as each hit actuates the make and break contact device, they not only indicate that the object fired at has been hit but record the full total of the successful hits made. The dials M are reset as and when required by means of the cords O.

What I claim is:

1. In shooting ranges, in combination a kinematoscope lantern and screen; a metal target, arranged behind the screen, of the form of the figure or object to be fired at and having its face divided into a series of recessed sections, the dished sides of each of which sections converge to the center of such section wherein is mounted a movable bolt; means for causing the said target to traverse a picture projected upon the screen synchronously with the moving object in the picture to be fired at; and means for indicating that the target is in register with the said moving figure or object in the picture.

2. Shooting ranges for rifle and revolver practice comprising in combination, a kinematoscope lantern and screen; a metal target of the form of the object to be fired.
at and having its face recessed—the dished sides of the recesses converging to centers in which are mounted movable bolts for completing by contact electric circuits with an indicating device at the firing point; means for moving the said metal target synchronously with the moving object to be fired at; means for indicating when the target is in register with the moving object; and an indicating device at the firing point operated electrically from the target and indicating by step by step revolving recording dials when a hit is made and the full total of such hits made.

In testimony whereof I have signed this specification in presence of two witnesses.

JAMES PATERSON.

Witnesses:

Geo. Coschead,
Charles E. Ball.