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APPARATUS FOR RIFLE-PRACTICE

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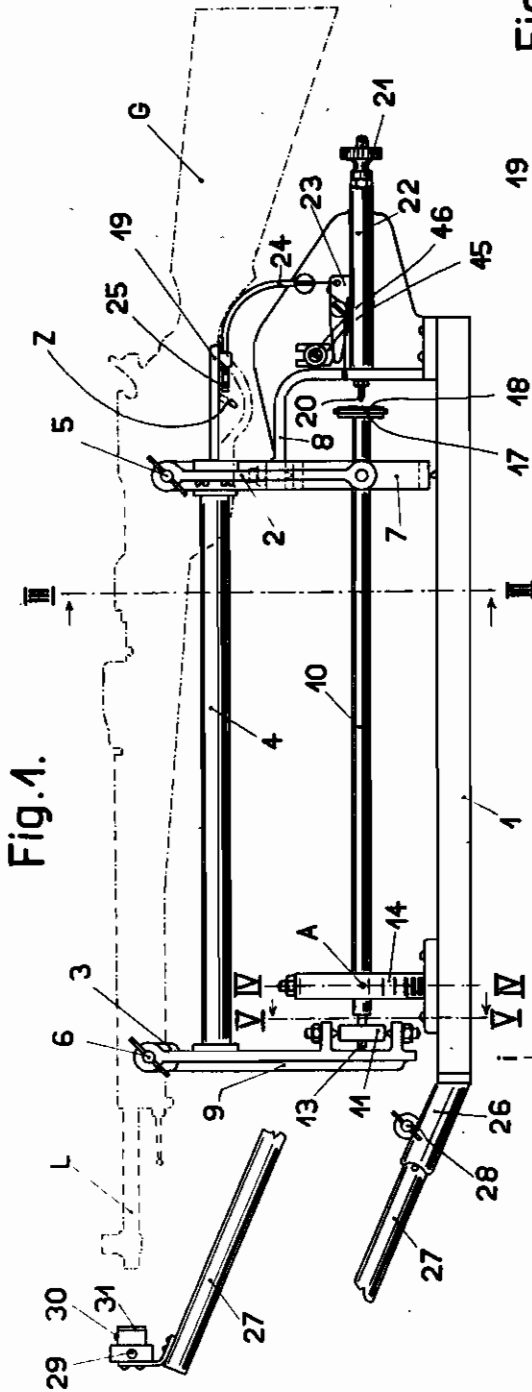


Fig. 1.

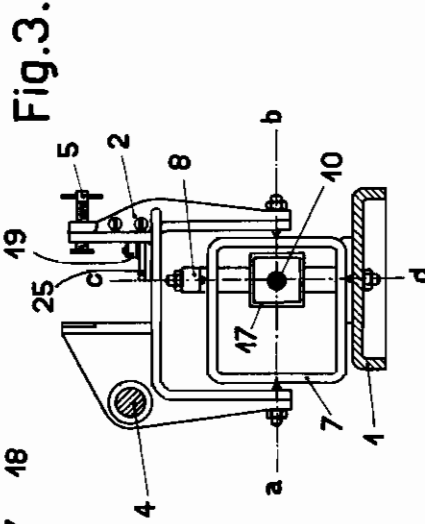


Fig. 3.

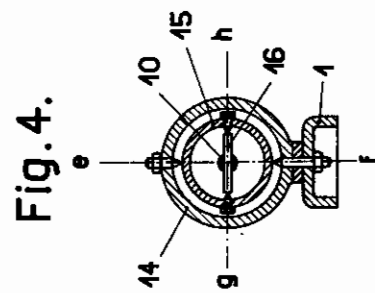


Fig. 4.

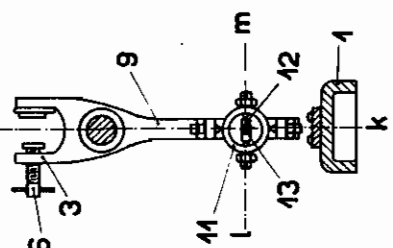


Fig. 5.

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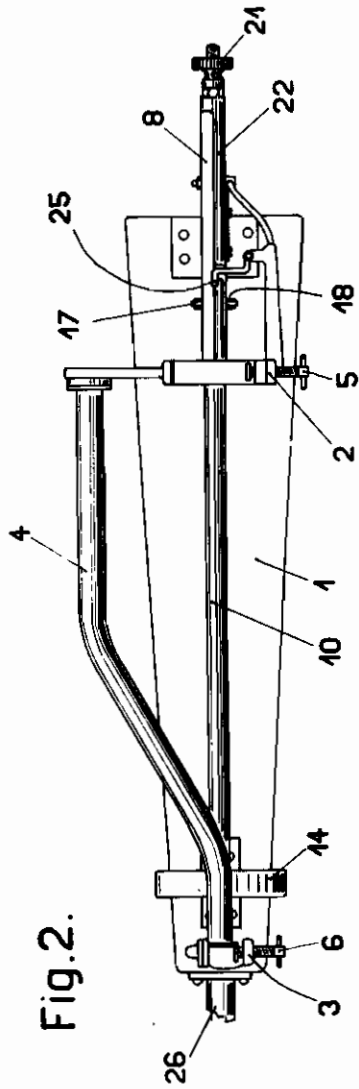


Fig. 2.

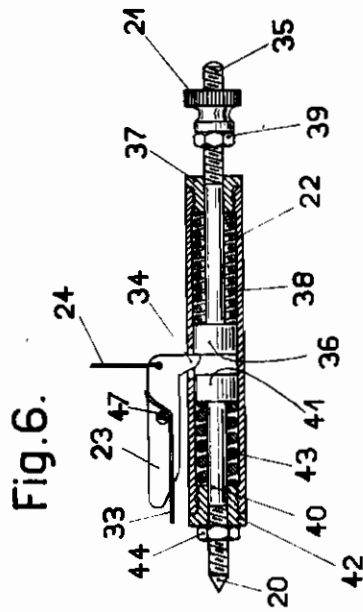


Fig. 6.

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# ALIEN PROPERTY CUSTODIAN

## APPARATUS FOR RIFLE-PRACTICE

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Application filed April 1, 1942

This invention relates to apparatus for rifle-practice and its primary object is to provide such apparatus, in addition to the direct target, with an indirect target, aim being taken at the direct target and the indirect target serving to ascertain the accuracy of aiming attained in each case.

Another object of the invention is to provide an apparatus allowing to give instruction and acquire practice in shooting at targets without the use of any ammunition, whereby not only ammunition is saved but also the rifles or guns employed with the apparatus will not be subjected to any substantial wear, and the apparatus will be particularly suitable for the instruction of the young which may handle it without any danger of an accident.

Another object of the invention is to facilitate instruction and shorten its term by enabling the instructor to continually follow all movements of the rifle or gun while the pupil is adjusting or leveling the same.

A further object of the invention is to spare the signaling of hits and the cumbersome method of fault-triangles, all hits being visible on the indirect target.

A still further object of my invention is to provide an effective apparatus for rifle-practice, simple and inexpensive in construction and which will occupy little space in operation so that, also the use of ammunition being eliminated, it will be adapted for indoor use.

With these objects in view, the apparatus comprises, in combination with a support for the rifle or gun movable in all directions on a fixed base and a direct target preferably carried by said base so as to be adjustable in position, a link mechanism carrying an indirect target and forming between the latter and the rifle support such a connection as to communicate all movements of said support to said indirect target, a striker pin pointing at said indirect target and movable in its longitudinal direction in a guide fixed on said base, and a mechanical connection between said striker pin and the trigger of the rifle or gun in the support causing the striker pin to hit upon the indirect target when the trigger is pulled, the said indirect target being so adjusted in position in relation to the striker pin that the line of sight of the rifle or gun in the support and the striker pin will always point at conjugate points on the direct and indirect targets, respectively.

An embodiment of my invention is illustrated, by way of example, in the accompanying drawings in which—

Fig. 1 is a side elevation of the whole apparatus, a rifle placed and fixed on the support being indicated by dash-and-dot lines and the rod 27 carrying the direct target being shown as broken.

Fig. 2 is a top view of the same apparatus with the rod 27 and part of its socket 26 broken away.

Fig. 3 is a section along the line III—III, Fig. 4 is a section along the line IV—IV, and Fig. 5 is a section along the line V—V of Fig. 1, all parts situated outside the link mechanism being omitted.

Fig. 6 is a detail sectional view on a larger scale showing the striker pin in its guide.

In the apparatus, as shown by way of example, the support carrying the rifle G rests on a base-plate 1 and consists of two forks 2 and 3 arranged in alignment at a suitable distance from one another and rigidly connected by means of a slightly cranked rod 4. Each fork is provided with a winged screw 5 and 6, respectively, for fixing the rifle in the forks.

Fork 2 is supported by a sort of Cardanic suspension, Figs. 1 and 3, permitting it to move within certain limits in all directions. For this purpose, the fork 2 is provided with two pivot points situated in a horizontal axis  $a-b$  and by means of which it is so suspended on a frame 7 as to be rockable about the axis  $a-b$ . The frame itself is so mounted in a bracket 8 fixed on the base-plate 1 as to be able to oscillate about a vertical axis  $c-d$  in the line of which two pivot points for the frame are fixed, the upper one on said bracket 8 and the lower one on the base-plate 1.

A downwardly extending projection 9 of fork 3 causes all movements of the support 2, 3, 4, that is to say of the rifle G fixed therein, to be communicated through the intermediary of a Cardanic joint, Figs. 1 and 5, to a rod 10 arranged to form a two-armed lever. This Cardanic joint consists of a ring 11 so mounted between two pivot points of the projection 9 as to be able of oscillation about a vertical axis  $i-k$  and carrying between two pivot points situated in a horizontal axis  $l-m$  a block 12 pivotable about this axis. The rod 10 is introduced with its reduced end 13 into a bore in the block 12.

The pivot of the two-armed lever formed by rod 10 is situated at A. This pivot, too, is supported by a sort of Cardanic suspension, Figs. 1 and 4, which consists of an external ring 14 fixed on base plate 1 and provided with two pivot points situated in a vertical axis  $e-f$  and carrying between them an internal ring 15 so as to be able of oscillations about the axis  $e-f$ . Two further

pivot points situated in a horizontal axis  $g-h$  are secured within the internal ring 15 to carry between them the pivot 16 of the rod 10.

The right-hand end of the rod 10 carries a plate or holder 17 on which an exchangeable indirect or auxiliary target 18, which may be a square sheet of paper, for example, is fixed. It will be apparent from the foregoing that this indirect target will accurately follow all movements of the rifle barrel, designated by L in Fig. 1, in an increased extent depending on the proportion existing between the length of the longer lever arm of the rod 10 and that of the shorter one. As shown in the drawing, by way of example, this proportion is about 10:1 which means that the movements of the rifle barrel L at the point where it is fixed to the fork 3 will be reproduced by the indirect target 18 on a ten times larger scale.

Opposite to the indirect target 18, a striker pin 20 is so arranged as to be movable in axial direction in a sleeve 22 fixed on the bracket 8. This pin 20 is guided in the sleeve 22 by a piston 41 at its inner end, and a spring 43 inserted between this piston and a plug 42 tends to retract the pin 20 so far a stop 44 screwed on the pin allows it. In Fig. 6 the pin 20 is shown in this retracted position. Another pin 35 with piston 36 and stop 39 as well as another plug 37 and another spring 38 are provided in a substantially symmetrical arrangement in relation to the analogous parts just mentioned but with the difference that the tension of spring 36 is able to overcome that of spring 43 and a knob 21 is screwed on the free end of pin 35. This knob serves as a handle to pull the pin 35 outwards so as to allow the nose 34 of a detent 23 to snap, under the action of a spring 33, through a slot of the sleeve 22 between the pistons 41 and 36 and thus withhold the pin 35 from further inward movement when it is retracted by the tension of spring 39. The detent 23 is pivotally secured on the bracket 8 at 47 and connected, by means of a Bowden cable 24 suspended on an arm 19 of the support, with a lever 25 located adjacent to the trigger Z of the

rifle G so as to be subjected to the action of the trigger. To put a limit to the penetration of the nose 34 into the sleeve 22 in an adjustable manner, at the opposite end of the detent a stop 45 is secured, in a desired position, to the bracket by means of a set screw 46.

Secured to the opposite end of the base plate 1 is a tube 28 serving as a socket for a rod 27 (shown as broken in Fig. 1) adjustable in longitudinal direction by means of a set screw 28 and carrying at its free end the direct target 31 at which the barrel L of the rifle is to be directed and which is also adjustable in position by means of screws 29 and 30.

Now, when one, in taking sight, is adjusting the barrel L of the rifle G by means of the movable support to point at the fixed direct target 31, the indirect target 18 will participate in all movements of the rifle in relation to the fixed striker pin 20. The apparatus is to be adjusted from the beginning in such a manner that the striker pin 20 should point at such a point or spot of the indirect target 18 as exactly corresponds to that point or spot of the direct target 31 at which the prolonged line of sight is directed. If the rifle is now symbolically fired by pulling the trigger Z, the latter will displace the lever 25 which will, by the intermediary of the Bowden cable 24, remove the nose 34 from the piston 36 which will, under the action of the spring 39, instantaneously hit upon the piston 41 and thereby push the striker pin 20 towards and against the indirect target 18. The mark of impact made by the striker pin on the indirect target 18 indicates the point or spot in which the direct target 31 is pierced through by the prolonged line of sight. Thus the point of impact on the indirect target is characteristic of the accuracy of the aim taken.

The direct target is to be reduced in area in accordance with its reduced distance from the eye of the almer. The corresponding dimensions of the indirect target can easily be determined from the proportion existing between the arms of the lever 10.

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