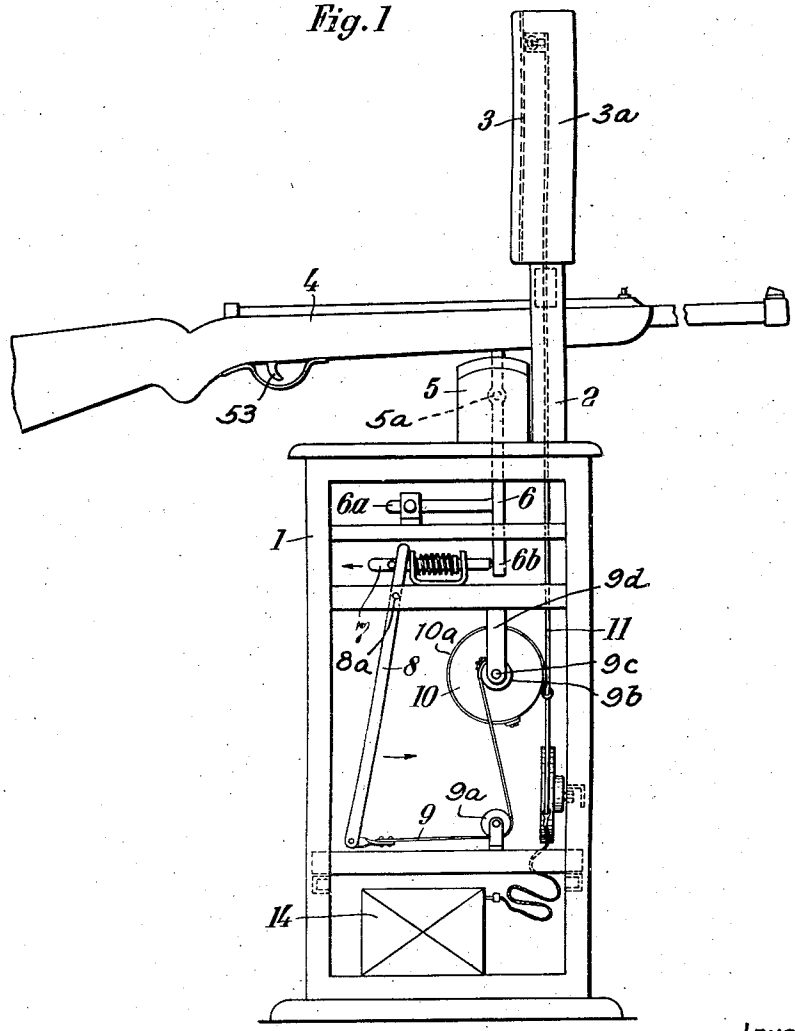
March 24, 1942. A. WADLE 2,277,467

AIMING OR SHOOTING DEVICE

Filed July 5, 1939 3 Sheets-Sheet 1

Fig. 1



Inventor

Anton Wadle

By

Attorney

March 24, 1942. A. WADLE 2,277,467

AIMING OR SHOOTING DEVICE

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Fig. 2

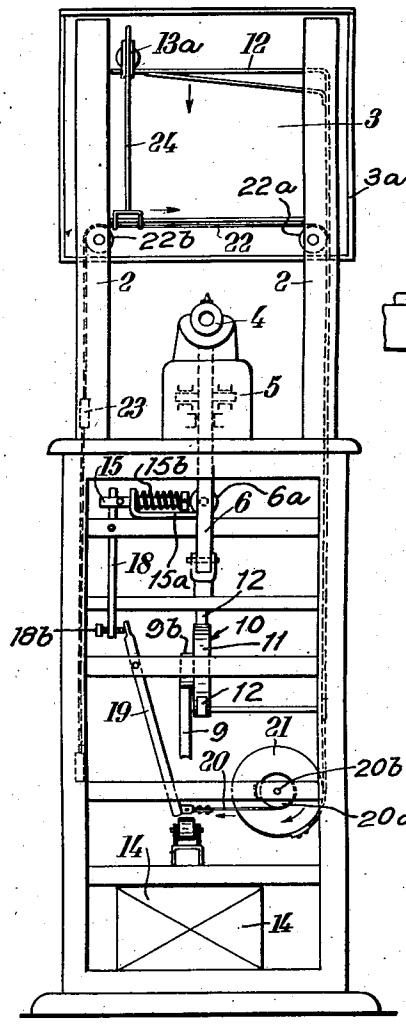


Fig. 3

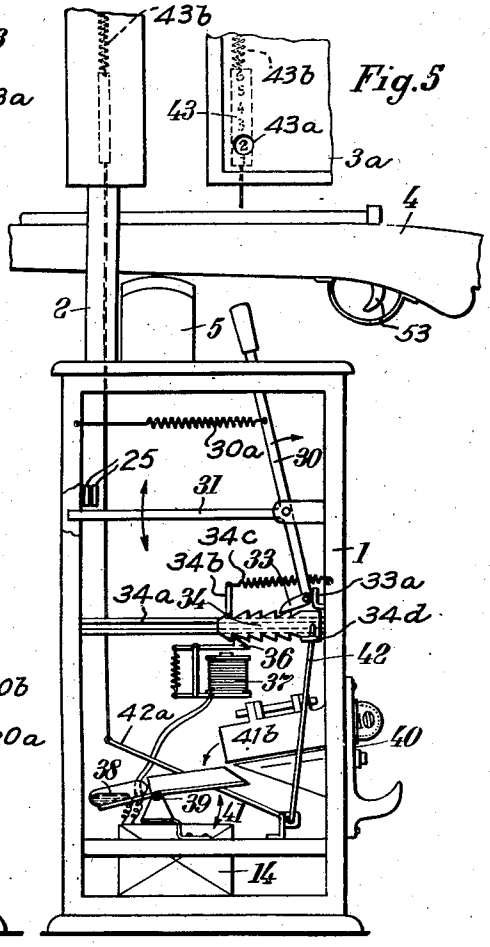


Fig. 5

Inventor
Anton Wadle.

By

Attorney

March 24, 1942. A. WADLE 2,277,467

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Fig. 4

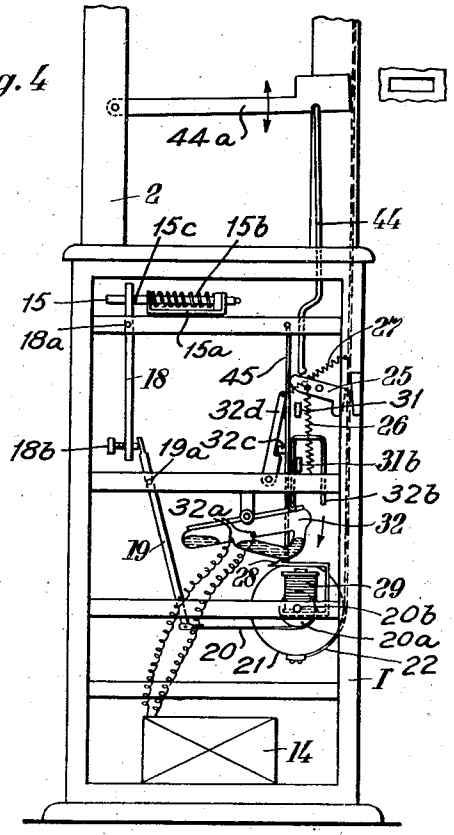


Fig. 6

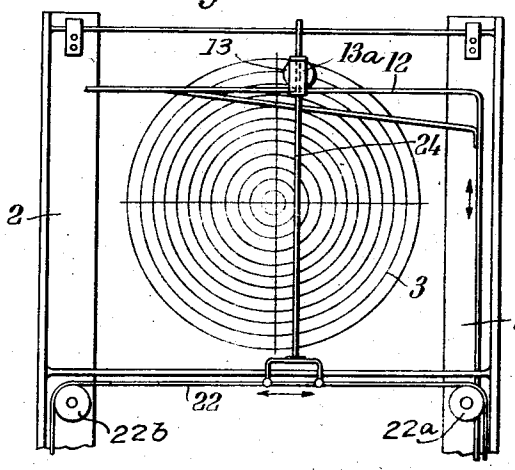
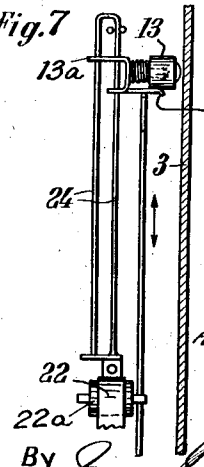


Fig. 7



Inventor
Anton Wadle

By

Attorney

Patented Mar. 24, 1942 2,277,467

UNITED STATES PATENT OFFICE

2,277,467

AIMING OR SHOOTING DEVICE

Anton Wadle, Mannheim-Feudenheim, Germany, assignor to Peter Krücken, Mannheim-Feudenheim, Germany

Application July 5, 1939, Serial No. 282,945
In Germany November 22, 1937

6 Claims. (Cl. 273—101.2)

This invention relates to an aiming or shooting device in which a rifle is arranged so as to be oscillatable in horizontal and vertical directions and the result of aiming or shooting is automatically indicated on a stationary target, the device being capable of operation with or without projectiles.

According to the invention, the upright target is directly connected with the rifle rest and the motion of the rifle is conveyed by a projection firmly connected with the rifle and cooperating in the motion thereof and by suitable transmission means to an indicating member disposed in or on the target. This projection, hereinafter referred to as control pin, is supported by two horizontally displaceable control rods which through the medium of steel bands or similar flexible means transmit their motion to two slide-like carriers for the indicating member, which are displaceable rectangularly to each other inside the target. As the motions of the rifle and control pin are relatively small during aiming, the motion transmitting means have preferably the form of interconnected rotatable discs of different diameter, so that the rifle motions are enlarged and thus become clearly visible on the target which may have any desired size and be arranged at any distance from the practice or shooting grounds. The indicating member is connected in circuit with the trigger of the rifle in known manner and thus appears at the moment of firing. Furthermore, in order to permit observation of the result of the aiming or shooting operation a locking means stops the motion transmitting and indicating means for some time at the moment of firing. To provide for the arrangement of the device in the form of an automatic machine at public places a special coin operated locking means permits after its release a certain number of operations the result of which may be recorded on a paper disc to be delivered to the user.

To enable the use of the invention for musketry training or rifle practice means are provided for imitating the recoil of a rifle, which consist for instance in making the butt of two parts and causing the end of the butt to strike the shoulder of the shooter at the moment of firing.

The device according to the invention is particularly suited for operation as a slot machine because the results are accurately and clearly indicated, the space required for installation is small and the indirect transmission of motion from the rifle to the indicator prevents damage to the mechanism even when the rifle is roughly handled. Furthermore, all sensitive parts can be enclosed and thus fully protected.

One form of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the device with the casing removed to show the elements for transmitting horizontal motion;

Fig. 2 is a side view thereof indicating particularly the transmitting means for motion in the vertical plane;

Figs. 3 and 4 are views from the opposite side and clearly show the coin slot with the locking means in two different positions and also the charging lever.

Fig. 5 shows the target pointing out the shots after the insertion of a coin.

Figs. 6 and 7 are detail views of the slides and the indicator arranged in the target in front and side-view respectively.

On a frame 1 a target 3 is mounted by means of two lateral supports 2, and a bearing 5 on the covering plate of the frame 1 supports a rifle 4 so that it can be swung in the horizontal and vertical planes. The bearings 5 may comprise for instance a ball and a spherical seat 5a. With the rifle 4 a control pin 6 is firmly connected which has a horizontal portion 6a and a vertical portion 6b. The vertical portion 6b follows the motion of the rifle in vertical tilting and transmits its motion to the pin 7 which is displaceable against the action of a spring and transmits its motion to the band 9 by means of a lever 8 pivoted on a horizontal pivot 8a. The band 9 extends around an idler roll 9a and is wound around and secured to a small roller 9b which is mounted on a shaft 9c carried by fixed hangers 9d. Also carried on the shaft 9c is a relatively large roller 10 around which is wrapped a belt 10a having one end secured to the roller 10. The free end of the belt 10a is connected at 10b to a vertical rod extending up into the target casing 3a for vertical movement therein. At its upper end, this rod 11 which is located at one side of the casing 3a, is provided with a track or arm 12, which extends horizontally across the casing or frame 3a to terminate adjacent the opposite side. A roller 13 is arranged to travel on the track 12. The rod 11 serves also as current conductor and is in circuit with a current source 14.

The horizontal arm 6a rests against the head of a horizontal pin 15 slidably mounted in a frame 15a and the head of the pin is held against the arm 6a by a spring 15b. Through the pin 15 extends a stop pin 15c which bears against a lever 18 pivoted on a horizontal pin 18a. At its lower end, this lever 18 carries an adjusting screw 18b which bears in turn against the upper end of a lever 19 pivoted on a horizontal pin 19a. To the lower end of the lever 19 is attached one end of a band or belt 20. The other end of the belt 20 is wound around and secured to a small pulley 20a mounted on a horizontal shaft 20b. On the shaft 20b is also mounted a large pulley 21 which rotates with the pulley 20a. One end of a band or belt 22 is secured to the pulley 21 and

passes vertically upward to the casing or frame 31 and there over an idler roll 22a to pass horizontally across to extend around a second idler pulley 22b and then vertically downward. A weight 23 keeps the band taut. Within the target 3 a slide 24 has its lower end secured to the horizontal portion of the band 22 and serves as vertical extending actuating means for carrier 13a of the indicator 13, the slide 24 moving with the band 22 in horizontal direction. The indicator 13 has the form of an incandescent bulb screened off to form a point which slides vertically on the slide 24, being movable downwardly by gravity and upwardly by action of the rod 11. The slide 12 and its supporting rod 11 are insulated and contact only with the holder of the indicator bulb 13 whose carrier and the band 22 are in metallic connection with the casing and act also as return. The clamping device includes a pair of horizontally pivoted levers 25 acting against an anvil or fixed jaw 25a and the band 22 and rod 11 pass between the levers and the fixed jaw. The levers 25 are urged into clamping position by springs 26. Pivoted at its upper end is a bar 45 below the lower end of which is fixed a magnet 29 having a latching armature 28, which, when the magnet is deenergized, engages the lower end of bar 25 and holds this bar pressed against the raised ends of the levers 25 when the latter are in unclamping position. A charging lever 30 has a handle extending above the casing 1 and also has an arm extending horizontally below the ends of the levers 25 adjacent the bar 44 so that forward movement of the lever handle will move the levers 25 to release position and allow the bar 45 to be engaged by the latching pawl 28 and thus hold the levers 25 released. A spring 30a holds the lever in position free from the levers 25. The trigger 53 controls a switch (not shown) so arranged that when the trigger is pulled, a circuit is closed through the magnet 29, the bar 45 released, and the springs permitted to move the lever 25 to clamping positions. A time switch 32, preferably of the mercury tumbler type, limits the time during which current flows through the bulb 13. This switch 32 is pivotally supported and is connected in the circuit controlled by the switch (not shown) actuated by the trigger 53. The switch 32 is arranged to tilt by gravity and during this tilting movement, the mercury will flow all into one end of the switch until finally the wires normally dipping into the mercury from contact points 32a will be left bare and thus break the circuit through the lamp 13 and magnet 29 after the interval necessary to produce this flow. In order to set this switch 32, it is connected to one arm of a stirrup 32b, which straddles an arm 31b carried by the lever 30, the arm 31b being so positioned that swinging the lever 30 forwardly lifts the stirrup and tilts the switch 32 to active position. Projecting from the stirrup is a lug 32c adapted to engage on an upwardly facing shoulder of an upstanding arm 32d. This arm has its upper end held lightly against the bar 45 by a light spring 27, so that when the bar 45 is swung laterally, upon release of the pawl 28, by action of the levers 25, the arm 32d will release the lug 32c and thus permit the switch 32 to tilt under influence of gravity. In order to indicate when the rifle is ready for firing, a rod 44 is mounted for vertical movement on the levers 25 and the upper end of this rod is pivotally connected to a signal member 44a pivoted to swing upwardly upon the levers 25 being in released position. In order to provide an indicator for determining the number of shots which have been fired, a guide 34a extends across the casing 1, and on this guide slides a ratchet member 34 having ratchet teeth on its upper and lower edges. A pawl 33 rides on the upper ratchet teeth and is carried by the lower end of the lever 30. This pawl is provided with an end engaging a stop 33a, the end being so formed as to lift the pawl free from the ratchet teeth in the normal forward position of the lever handle. A post 34b extends upwardly from the forward end of the slide and its upper end is connected by a spring 34c with the casing 1 to urge the slide against actuation by the pawl 33. A magnet 37 lies below the path of the slide 34 and is provided with a pawl armature 36 held to engage with the teeth on the lower edge of the slide by a spring 37a so long as the magnet is de-energized. The slide 34 is provided with a perforated lug 34d wherethrough passes the end portion of the arm 42 of a bell crank lever having a second arm 42a. To the arm 42a is connected a wire 42b leading up to a numbered slide 43, the numbers of which are successively exposed through an opening 43a in the casing 3a. In order to provide for actuating the magnet 37, it is connected in a circuit including a normally open mercury switch 38, pivoted at 39 and carrying a coin tray 41 so positioned that a coin inserted through a coin slot 41a and rolling down a tube 41b will drop on the tray 41 and thus tilt the switch to closed position. From the foregoing, it will be seen that each forward movement of the handle of lever 30 will advance the slide 34 rearwardly one tooth and similarly shift the slide 43 against the action of spring 43b one number. When all the teeth on the slide have been traversed by pawl 33, pawl 36 which has been resisting actuation of slide 34 by spring 34c may be released by depositing a coin. In use, a target 55 is positioned at a distance from the apparatus with its center alined accurately both as respect vertical position and as respect horizontal position with the center of the target 3.

In operation, after depositing a coin, the lever 30 has its handle drawn forward. This, as previously described, advances the slide 34 one step, releases the clamp levers 25 from gripping the members 11 and 22, and sets and locks the switch 32 in firing position, as shown in Figure 4. Also, this action causes raising of the signal lever 44a and movement of the indicator 43. The user now aims the gun at the target 55 and the indicator 13 is moved over the target 3 in conformity to the movements of the rifle. When the user is satisfied that his aim on target 55 is correct, he pulls trigger 53. This closes a circuit through magnet 29 which releases bar 45 so that levers 25 may move to clamping position and lock the indicator against movement. At the same time, the swinging of bar 45 releases lug 32c which permits the stirrup 32b to drop and the switch to tilt whereupon, as above described, the mercury will flow to open the switch 32. The movement of the lever 30 again starts the operations above noted and these operations are repeated until the slide 34 has reached the limit of its movement as indicated by exposure of the final number on the slide 43 through the opening 43a. When this occurs, a coin must again be deposited which will effect release of the pawl 36 and restoration of the slide 34 by the spring 34c to starting position.

I claim:

1. In an aiming device, a support, a rifle

mounted on said support for universal movement about a fixed point of the support, a target carried by the support, an indicator mounted for vertical and horizontal movements over said target, operating means connecting the rifle and target and translating horizontal swinging movements of the rifle to horizontal swinging movement of the indicator and vertical swinging movements of the rifle to vertical movements of the indicator, clamping means adapted to engage and hold said operating means against movement, holding means for engaging the clamping means and holding the latter in operating means release position, latch means releasably holding the holding means in said position, a magnet releasing said latch means when energized, a trigger on said rifle for operating a circuit closing switch, and a circuit including said magnet and switch.

2. In an aiming device, a support, a rifle mounted on said support for universal movement about a fixed point of the support, a target carried by the support, an indicator mounted for vertical and horizontal movements over said target, operating means connecting the rifle and target and translating horizontal swinging movements of the rifle to horizontal swinging movement of the indicator and vertical swinging movements of the rifle to vertical movements of the indicator, clamping means adapted to engage and hold said operating means against movement, holding means for engaging the clamping means and holding the latter in operating means release position, latch means releasably holding the holding means in said position, a magnet releasing said latch means when energized, a trigger on said rifle for operating a circuit closing switch, a circuit including said magnet and switch, a timing switch included in said circuit and tiltably mounted to move between closed and open circuit positions, and latch means cooperating with the holding means to hold the timing switch releasably in closed circuit position.

3. In an aiming device, a support, a rifle mounted on said support for universal movement about a fixed point of the support, a target carried by the support, an indicator mounted for vertical and horizontal movements over said target, operating means connecting the rifle and target and translating horizontal swinging movements of the rifle to horizontal swinging movement of the indicator and vertical swinging movements of the rifle to vertical movements of the indicator, clamping means adapted to engage and hold said operating means against movement, holding means for engaging the clamping means and holding the latter in operating means release position, latch means releasably holding the holding means in said position, a magnet releasing said latch means when energized, a trigger on said rifle for operating a circuit closing switch, a circuit including said magnet and switch, and a manually operable resetting lever engageable with the clamping means to move the latter to operating means release position.

4. In an aiming device, a support, a rifle mounted on said support for universal movement about a fixed point of the support, a target carried by the support, an indicator mounted for vertical and horizontal movements over said target, operating means connecting the rifle and target and translating horizontal swinging movements of the rifle to horizontal swinging movement of the indicator and vertical swinging movements of the rifle to vertical movements of the indicator, clamping means adapted to engage and hold said operating means against movement, holding means for engaging the clamping means and holding the latter in operating means release position, latch means releasably holding the holding means in said position, a magnet releasing said latch means when energized, a trigger on said rifle for operating a circuit closing switch, a circuit including said magnet and switch, a timing switch included in said circuit and tiltably mounted to move between closed and open circuit positions, latch means cooperating with the holding means to hold the timing switch releasably in closed circuit position, and a manually operable resetting lever engageable with the clamping means to move the latter to operating means release position and to move the timing switch from open to closed position.

5. In an aiming device, a support, a rifle mounted on said support for universal movement about a fixed point of the support, a target carried by the support, an indicator mounted for vertical and horizontal movements over said target, operating means connecting the rifle and target and translating horizontal swinging movements of the rifle to horizontal swinging movement of the indicator and vertical swinging movements of the rifle to vertical movements of the indicator, clamping means adapted to engage and hold said operating means against movement, holding means for engaging the clamping means and holding the latter in operating means release position, latch means releasably holding the holding means in said position, a magnet releasing said latch means when energized, a trigger on said rifle for operating a circuit closing switch, a circuit including said magnet and switch, a manually operable resetting lever engageable with the clamping means to move the latter to operating means release position, a shot counting mechanism, and an operative connection between the resetting lever and the shot counting mechanism.

6. In an aiming device, a support, a rifle mounted on said support for universal movement about a fixed point of the support, a target carried by the support, an indicator mounted for vertical and horizontal movements over said target, operating means connecting the rifle and target and translating horizontal swinging movements of the rifle to horizontal swinging movement of the indicator and vertical swinging movements of the rifle to vertical movements of the indicator, clamping means adapted to engage and hold said operating means against movement, holding means for engaging the clamping means and holding the latter in operating means release position, latch means releasably holding the holding means in said position, a magnet releasing said latch means when energized, a trigger on said rifle for operating a circuit closing switch, a circuit including said magnet and switch, a timing switch included in said circuit and tiltably mounted to move between closed and open circuit positions, latch means cooperating with the holding means to hold the timing switch releasably in closed circuit position, a manually operable resetting lever engageable with the clamping means to move the latter to operating means release position and to move the timing switch from open to closed position, a shot counting mechanism, and an operative connection between the resetting lever and the shot counting mechanism.

ANTON WADLE.