

Aug. 7, 1945.

F. F. LEININGER

2,381,547

ELECTRICAL FIREARM

Filed Dec. 6, 1941

2 Sheets-Sheet 1

Fig. 1.

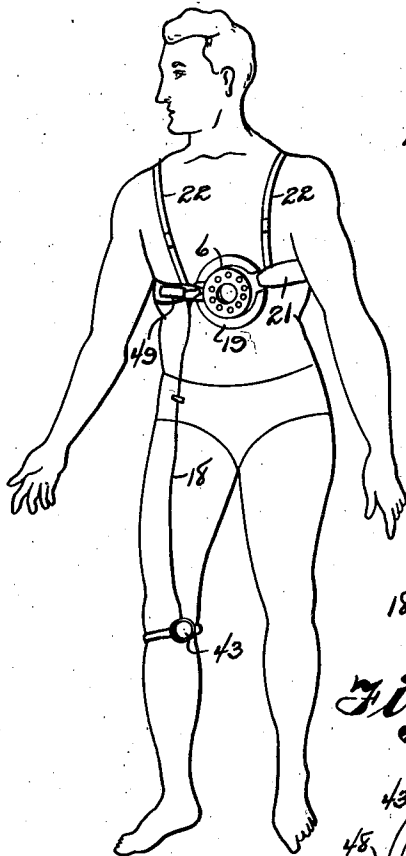


Fig. 2.

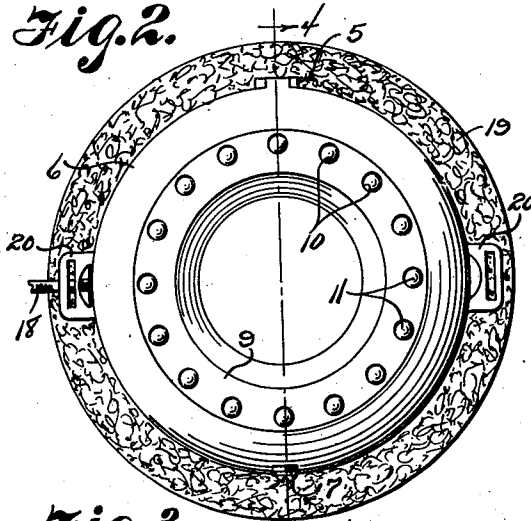


Fig. 3.

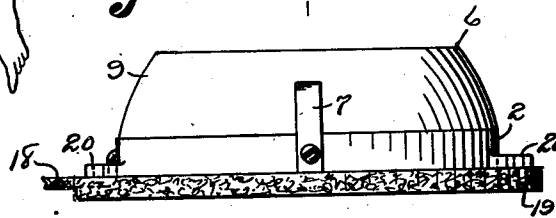


Fig. 5.

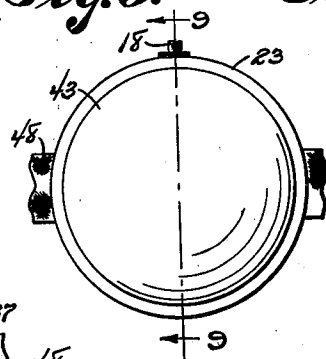


Fig. 4.

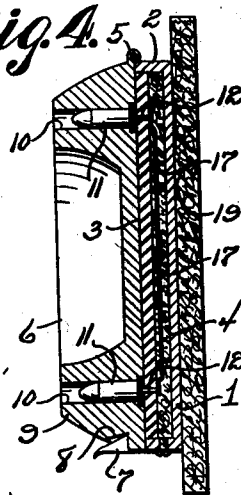
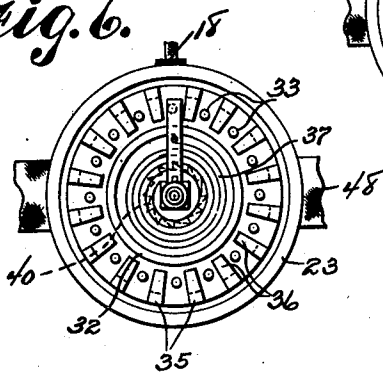


Fig. 6.



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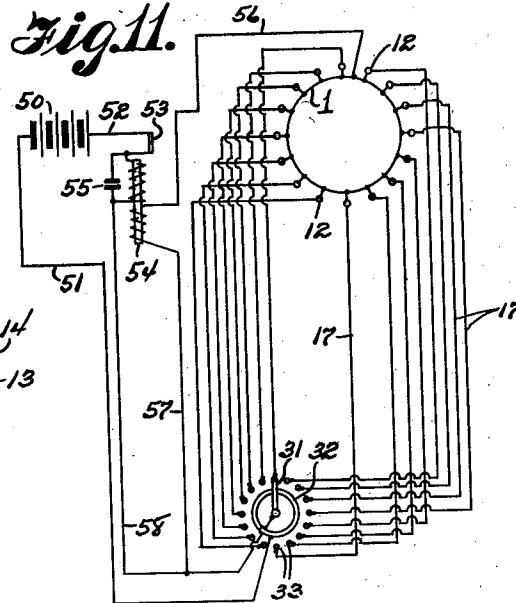
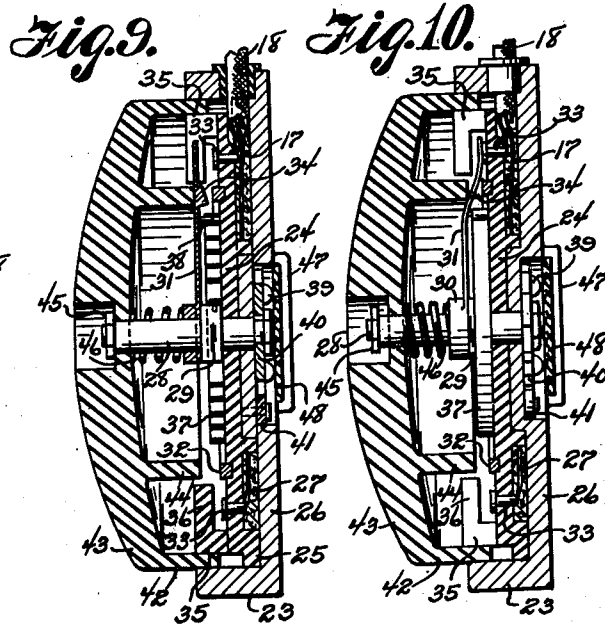
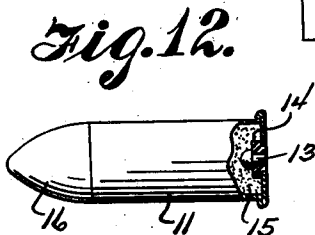
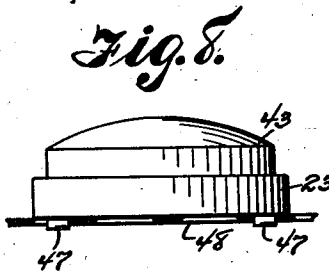
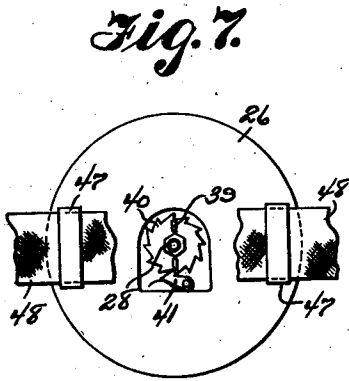
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ELECTRICAL FIREARM

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2 Sheets-Sheet 2



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2,381,547

ELECTRICAL FIREARM

Floyd F. Leininger, Plant City, Fla.

Application December 6, 1941, Serial No. 422,003

6 Claims. (Cl. 42-1)

This invention relates to firearms, and its general object is to provide a light weight, compact, automatic, repeating, electrical firearm or shooting device that is primarily designed for use in self defense, particularly by bank employees, messengers, mail clerks and the like, while in the performance of their duties, in that the device can be instantly and repeatedly fired, without the use of the hands or arms, and while in a standing or sitting position, with the arms and hands raised or lowered or otherwise held, as commanded by the assailant, as the device is adapted to be attached to the person, and is rendered active merely by moving the legs together for closing a switch mounted on one of the legs, preferably at the knee.

A further object is to provide a shooting device that can be worn under the clothing, without discomfort or detection, and is simple in construction, inexpensive to manufacture, and extremely efficient in operation, use and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a view illustrating my device attached to the person for use.

Figure 2 is a front view of the firing unit.

Figure 3 is a bottom edge elevation thereof.

Figure 4 is a sectional view taken approximately on line 4-4 of Figure 2, looking in the direction of the arrows.

Figure 5 is a front view of the switch.

Figure 6 is a similar view with the push button removed from the switch.

Figure 7 is a rear view of the switch, with the leg encircling band or strap broken away to illustrate the ratchet means.

Figure 8 is an edge elevation of the switch.

Figure 9 is a sectional view taken through the switch with the parts in normal position.

Figure 10 is a similar view with the parts in closed position.

Figure 11 is a diagrammatic view of the electric circuit employed with my device.

Figure 12 is a view of a cartridge constructed for use with the device.

Referring to the drawings in detail, and par-

ticularly to Figures 2, 3 and 4, it will be noted that the firing unit is of substantially flat circular formation and includes a body having a disk like plate 1 providing a rear wall formed with a marginal flange 2 having fittingly secured therein, in spaced relation to the plate 1, a disk 3 of insulating material, and between the disk and the plate is a mass 4 of compact insulating material for conductor wires, as clearly shown in Figure 4. Hinged as at 5 to the flange 2 is a relatively flat cartridge receiving and holding cylinder or magazine 6 that includes a flat rear face to normally bear against the disk 3 and the magazine 6 is held accordingly by a spring latch arm 7 fixed to the flange 2 diametrically opposite the hinge and provided with a substantially triangular shaped head receivable in a keeper notch 8 in the magazine. The head is shaped to facilitate its removal from the notch, and to allow automatic latching action when the magazine is moved to closed position.

The magazine 6 is centrally recessed to provide an annular marginal portion 9 reduced inwardly from its inner to its outer edge and having an annular row of bores 10 therethrough providing chambers for cartridges 11, and the rear ends of the bores are enlarged to provide seats for the rims of the cartridges, as clearly shown in Figure 4. Fixed to and extending through the disk 3 in an annular row for registration with the bores 10 when the magazine is closed, are headed contact or firing pins 12 having their outer ends projecting into the seat portions of the bores to engage contact members providing electrodes 13 mounted in insulating blocks 14 secured to the rear ends of the cartridge shells for disposal therein, so that a spark gap is provided between the electrode 13 and the shell, as will be apparent upon inspection of Figure 12, which likewise illustrates that the cartridges are otherwise of the usual construction for use with small firearms, in that the shell is filled with powder 15 and mounted in the outer end of the shell is a projectile 16. The conductor wires 17 which are indicated by the reference numeral 17 have one of their ends connected to the headed ends of the contact pins 12, there being of course a wire for each pin, as shown in Figure 11, and the wires are sheathed from their passage through the body to provide a cable 18 that extends from the firing unit to the switch, as shown in Figure 1.

Adhesively or otherwise secured to the rear face of the body plate 1 is a disk shaped pad 19 of any suitable absorbent material such as felt,

sponge rubber or the like for the purpose of acting as a shock absorber as will be apparent, and formed on the plate to extend from diametrically opposite sides thereof are slotted ears 20 having connected thereto strap members providing a belt 21 having suitable fastening means such as a buckle or the like for securing the belt about the body of the user with the firing unit mounted on the chest, as likewise shown in Figure 1. Adjustable shoulder straps 22 are provided for cooperation with the belt 21 for holding the unit in place.

The switch unit, as best shown in Figures 9 and 10 likewise includes a flanged circular body 23 similar to that of the firing unit, and fixed within the flange of the body 23 is a disk 24 of insulating material, having a marginal flange 25 formed thereon and bearing against the wall 26 to provide a space for a mass 27 of compact insulating material which has the opposite end portions of the wires 17 embedded therein.

Rotatably mounted in and extending centrally through the wall 26 and the disk 24 is a shaft 28 having reduced threaded ends and an abutment member 29 between its ends, with the latter bearing against the disk 24. Fixed to the shaft by a collar 30 is a spring contact arm 31 normally spaced from but engageable with a contact ring 32 and the heads of an annular row of spaced contact pins 33, the ring being fixed to the disk 24 in the path of a contact element 34, while the pins 33 extend through the disk 24 and have the conductor wires 17 connected thereto.

Fixed about the margin of the disk 24 to extend forwardly therefrom are spaced right angle stop lugs 35 of insulating material and which have inwardly directed portions 36 spaced from the disk 24 and disposed between the pins 33, as best shown in Figure 6, as well as arranged in the path of the contact arm 31, as shown in Figure 9. Surrounding the abutment member 29 and having one end fixed thereto is a coil spring 37 of the clock type, and the opposite end of the coil spring is connected to a pin 38 extending inwardly from the arm 31, so that upon unwinding of the spring 37, it will rotate the arm, but normally holds the arm against a stop lug 35 in front of a pin 33, as shown in Figures 6 and 9.

The spring is wound or contracted by finger pieces 39 formed on a ratchet wheel 40 that is fixed to the rear end of the shaft and held thereon by a nut, and the wheel is held against retrograde movement by a spring pressed pawl 41, which together with the wheel, are mounted within a recess in the rear face of the wall 26.

Mounted for slidable movement between the lugs 35 and the flange of the wall 26 is the outer or marginal flange 42 of a push button 43 which has an inner annular flange 44 formed thereon to engage the arm 31, so that upon inward movement of the push button, the flange 44 will move the arm into engagement with the head of the pin 33 in the path thereof, and the contact element 34 in engagement with the contact ring 32, so that the circuit having the engaged pin 31 and the pin 12 therein will be closed for firing a cartridge. The inward movement of the arm 31 will likewise release it from the lug 35 by which it was held, and the coil spring will move the arm to the next lug for disposal thereof in front of the next pin 33, all of which will be obvious upon inspection of Figures 6 and 9. The push button is held in normal position against a nut 45 on the forward end of the shaft and within a recess in

the button, by a spring 46 sleeved on the shaft between the collar 30 and the inner face of the button, as clearly shown in Figures 9 and 10, which likewise illustrates that the body of the button is of concavo-convex formation.

Secured to the rear face of the wall 26 upon opposite sides of the recess are attaching members 47 for a leg encircling strap 48 which is provided with suitable fastening means such as a buckle or the like for attaching the switch to the leg of the user preferably at the knee, as shown in Figure 1, for disposal in the path of the other knee for closing the switch.

The body belt 21 has a casing 49 secured thereto for holding a battery 50 and a vibrator spark coil for intensifying the current to the contact pins 12. The battery has a conductor wire 51 between one side thereof and the contact ring 32 and a conductor wire 52 from its opposite side to a vibrator 53, the latter being connected in the primary circuit of the coil 54, and the primary circuit also has a condenser 55 therein. A conductor wire 56 in the secondary circuit of the coil is connected to the body plate 1 of the firing unit and a conductor wire 57 likewise in the secondary circuit is connected to a conductor wire 58 in the primary circuit from the condenser to the collar 30 of the contact arm 31.

From the above description and disclosure in the drawings, it will be obvious that upon pressing the push button a circuit will be closed to a cartridge for firing the same, and upon alternate pushing and releasing the button, all of the cartridges can be fired in rapid succession, and that action is accomplished merely by a slight movement of the legs.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:

1. An electrical shooting device comprising a relatively flat firing unit, means for attaching the unit to the body of the user, electrically fired cartridges, means within each of the cartridges to provide a spark gap, chambered means included in the unit for holding the cartridges in firing position, insulated contact means within the unit and engaged with the spark gap providing means of each cartridge, a battery current supplying means, a switch having a plurality of contact elements each electrically connected with the respective insulated contact means, a movable switch arm successively engageable with each contact element, a resiliently extended push button and means operable upon actuation of said button to operate said switch arm, and means for completing the electrical circuit from said switch arm through said current supply means to said chambered means, whereby repeated actuation of the push button will successively fire the cartridges.

2. An electrical shooting device comprising a relatively flat firing unit, means for attaching the unit to the body of the user, electrically fired cartridges, means within each of the cartridges to provide a spark gap, said unit including a body, chambered means for holding the cartridges in fired position and connected to the unit body for movement relative thereto to allow loading, latch means for securing the chambered means against movement, insulated contact members in the unit

body and engaged with the spark gap providing means of each cartridge, a battery current supplying means, a switch having a plurality of contact elements each electrically connected with the respective insulated contact means, a movable switch arm successively engageable with each contact element, a resiliently extended push button and means operable upon actuation of said button to operate said switch arm, and means for completing the electrical circuit from said switch arm through said current supply means to said chambered means, whereby repeated actuation of the push button will successively fire the cartridges.

3. An electrical shooting device comprising a relatively flat firing unit, straps for attaching the unit to the chest of the user, a plurality of cartridges, means within each of the cartridges to provide a spark gap for electrically firing the same, chambered means included in the unit for holding the cartridges in firing position, a plurality of insulated contact means within the unit and each engaged with one of the spark gap providing means, a battery current supplying means electrically connected to the chambered means, a switch including a plurality of insulated contact pins in circuit with said contact means for the respective cartridges, a contact ring in the switch, a rotatably mounted spring arm electrically connected to the current supplying means and normally spaced from and movable in successive engagement with the pins and ring for closing a circuit having the chambered means, the supplying means and the respective contact means therein for firing the respective cartridges, means for rotating the arm, spaced stop means arranged in the path of the arm to hold the same against rotation, and means for moving the arm out of its held position and into pin and ring engaging position.

4. An electrical shooting device comprising a relatively flat firing unit, means for attaching the unit to the chest of the user, electrically fired cartridges, means within each of the cartridges to provide a spark gap, chambered means included in the unit for holding the cartridges in firing position, a plurality of insulated contact means within the unit and each engaged with the respective spark gap providing means, a battery current supplying means electrically connected to the chambered means, a switch including a body, insulated contact pins in the body and in circuit with each of said contact means, an insulated contact ring in the body, a shaft mounted for rotation in the body and extending therethrough, a collar secured to the shaft, a spring arm electrically connected to the current supplying means and fixed to the collar and engageable with the pins and the ring for closing circuits having the chambered means, the supplying means and said contact means therein for firing the cartridges,

stop lugs disposed in the path of the spring arm to hold the latter against movement in front of any one of said contact pins, a spring pressed push button slidably mounted on the shaft for moving the spring arm away from the lugs and in engagement with the contact pins and ring, a clock spring connected to the shaft and the arm for rotating the latter, and means for winding the clock spring.

5. An electrical shooting device comprising a relatively flat firing unit, means for attaching the unit to the chest of the user, electrically fired cartridges, means within each of the cartridges to provide a spark gap, chambered means included in the unit for holding the cartridges in firing position, a plurality of insulated contact means within the unit and each engaged with the respective spark gap providing means, a battery current supplying means electrically connected to the chambered means, a switch including a body, insulated contact pins in the body and in circuit with each of said contact means, an insulated contact ring in the body, a shaft mounted for rotation in the body and extending therethrough, a collar secured to the shaft, a spring arm electrically connected to the current supplying means and fixed to the collar and engageable with the pins and the ring for closing circuits having the chambered means, the supplying means and said contact means therein for firing the cartridges, stop lugs disposed in the path of the spring arm to hold the latter against movement in front of any one of said contact pins, a spring pressed push button slidably mounted on the shaft for moving the spring arm away from the lugs and in engagement with the contact pins and ring, a clock spring connected to the shaft and arm for rotating the latter, pawl and ratchet means for the clock spring and having the ratchet fixed to the shaft, means on the ratchet for winding the spring, and means for attaching the switch to one knee of the user for disposal in the path of the other knee for the latter to close the switch.

6. An electrical shooting device comprising a firing unit, means for attaching the unit to the body of a user, a plurality of cartridges each having individual spark gap means for firing the same, chambers in the unit for receiving and holding the respective cartridges in firing position, contact means in the unit, one for each cartridge and insulated from each other, current supplying means electrically connected to the chambers, and a plural contact switch having a switch arm electrically connected to the current supplying means and the respective contacts of the switch being electrically connected with the respective contact means, and the switch arm movable to close the circuit to each cartridge successively to fire the same.

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