

Dec. 23, 1947.

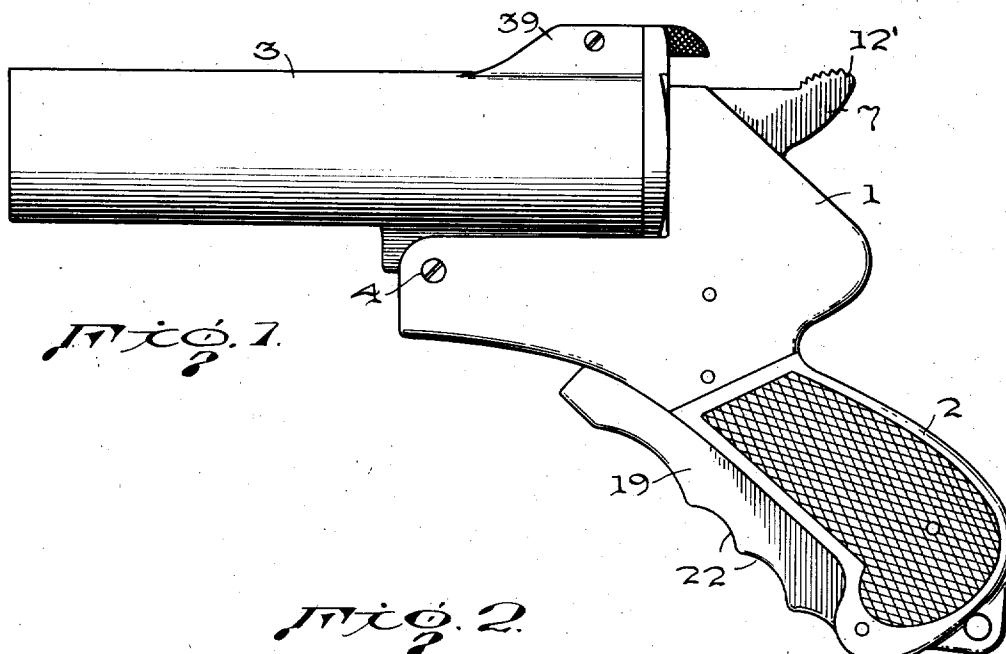
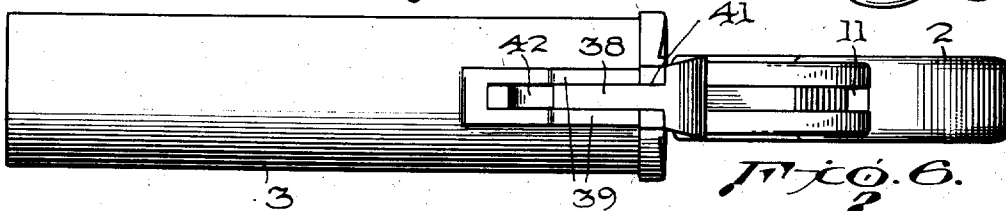
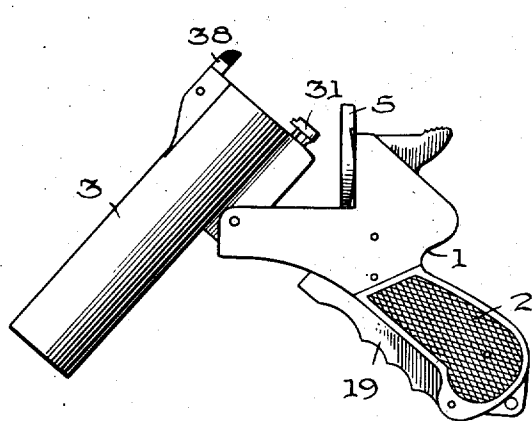
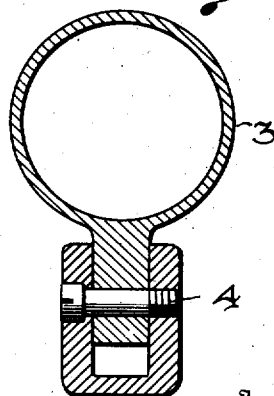
J. W. VAN KARNER

2,433,309

FIRING MECHANISM FOR SIGNAL PISTOLS

Filed March 23, 1944

2 Sheets-Sheet 1



Inventor

JOSEPH W. VAN KARNER

By *Levin & Levin*

Attorneys

UNITED STATES PATENT OFFICE

2,433,309

FIRING MECHANISM FOR SIGNAL PISTOLS

Joseph W. Van Karner, New York, N. Y.

Application March 23, 1944, Serial No. 527,808

4 Claims. (Cl. 42—69)

1

This invention relates to a pistol particularly adapted for firing or detonating signal cartridges, smoke cartridges, gas-containing cartridges, and the like.

It is the object of the invention to provide a pistol of the above type containing a relatively few parts and in which the release of the trigger is brought about by the operator squeezing the pistol grip with his entire hand, rather than by moving the usual type of trigger with the forefinger of the hand holding the pistol. Accordingly, a feature of the present invention is the provision of a pistol having a trigger bar extending along one side, preferably the forward side of the pistol grip.

A further object of the invention is to provide a pistol of the above type having a base plate back of the barrel or cartridge-receiving cylinder provided with a central opening through which a firing pin attached to a hammer is projected to fire or detonate a cartridge, and to provide means for moving the hammer back, after a cartridge is fired, a distance sufficient to prevent the firing pin from projecting through the base plate. Thus, after the pistol is fired the firing pin is withdrawn so that it will not interfere with the opening or breaking of the pistol, and cannot be damaged when the pistol is in open position.

The invention will be further described in connection with the accompanying drawings but it is to be understood that such further illustration and description is by way of exemplification and that the invention is not limited thereto.

In the drawings

Fig. 1 is a side elevation of a signal pistol embodying the present invention.

Fig. 2 is the plan view,

Fig. 3 is a view of the pistol in broken, or open position,

Fig. 4 is a sectional view of the pistol shown in Fig. 1 with a portion of the barrel or cartridge-receiving cylinder broken away, and with the hammer in the position which it assumes after a cartridge has been fired and before it again has been cocked,

Fig. 5 is a sectional view similar to Fig. 4, with parts broken away, but showing the hammer in cocked position, and

Fig. 6 is a sectional view on line 6—6 of Fig. 4.

Referring to the drawings it will be noted that the pistol comprises a body portion 1 having a hand grip 2 extending from the rear part thereof and a barrel or cartridge-receiving cylinder 3 pivoted at 4 to the forward part thereof. The body portion is hollow, and while it may be made of any

2

suitable material, preferably is made of some non-corrosive metal, such as bronze, or the like.

The body portion includes a base plate 5 opposite the rear end of the barrel which has an opening 6 in the center thereof. A hammer 7 having a firing pin 8 projecting from the forward part thereof is pivoted within the body portion by means of a hammer pin 9 extending there-through. The body portion 1 has a hammer slot 11 in the upper part thereof in which the hammer moves when being cocked or when moved from cocked to firing position.

The upper end of the hammer is provided with a serrated or knurled extension 12' which may be gripped by one's thumb to move the hammer to cocked position. The lower end of the hammer is provided with projections 12 and 13 forming shoulders on its periphery below the pivot pin 9.

A sear member 14 is pivoted intermediate its ends on a sear pin 15 extending through the upper portion of the hand grip. A toe-piece 16 of the sear member is adapted to engage behind the shoulder 13 to retain the hammer in cocked position as shown, in Fig. 5. The opposite end of the sear member has a rounded projection 17 which is adapted to be engaged by a portion 18 of a trigger bar 19 pivoted adjacent the distal end of the hand grip by means of a pivot pin 20. The trigger bar extends throughout the length of the hand grip and is provided on the forward side thereof which extends through a slot 21 in the forward side of the hand grip with curved indentations 22 to receive the fingers of the hand of one holding the pistol. A projection 23 on the upper end of the trigger prevents the trigger from being projected forward; out of the slot in the hand grip.

A relatively strong leaf spring 24 of generally hair pin shape is retained within the hand grip by a pin 25 extending through the loop thereof. One end of the spring bears against a rounded projection 25' on the sear member between the sear pin 15 and the rounded projection 17 and normally tends to swing the toe-piece 16 in a clockwise direction against the periphery of the lower shoulder portion of the hammer 8, and to cause the trigger bar 19 to be projected forward with the extension 23 contacting the body portion at the upper end of the slot 21. The other end of the spring is received within a generally V-shaped notch 26' in the lower portion of the hammer. The upper side of the spring exerts its force in an upward direction on the hammer and tends to swing it in a counter-clockwise direction, that is toward firing position. However, when the hammer is moved to cocked position the force exerted

by the other end of the spring on the sear member 14 causes the toe-piece 16 to engage behind the shoulder 13 and hold the hammer in cocked position until the trigger bar 19 is squeezed to disengage the toe-piece, whereupon, the hammer is swung forward by the spring to fire a cartridge in the barrel 3.

The upper portion of the hammer 7 has a bore 26 which receives a spring-pressed pin 27 retained within the bore by a cross pin 28. When the pistol is fired by squeezing the trigger bar 18 to release the toe-piece 16 of the sear member from behind the shoulder 13 the hammer moves forward and the firing pin 8 thereof is projected through the central opening 16 in the base plate 5 a distance sufficient to engage and detonate the cap of a cartridge within the barrel. The hammer is moved forward by the spring 24 with sufficient force to cause the plunger 27 to be pushed back in the bore 26 against the resistance of spring 29 to enable the firing pin to engage the cap of the cartridge within the cylinder. However, after the initial impact of the firing pin against the detonating cap of the cartridge the force of the spring 29 against the rear of the plunger 27 causes the hammer to be moved back a distance sufficient to cause the firing pin to lie wholly within the opening 6, as shown in Fig. 4, so that the firing pin will not interfere with the breaking or opening of the pistol, and will not project through the base plate when the pistol is open, where it might become damaged.

The squeezing of the trigger bar 19 to fire the pistol causes the sear member 14 to swing about the sear pin 15 a distance sufficient to cause the toe-piece 16 to be disengaged from behind the shoulder 12 and to move out of the path thereof as the hammer moves forward to fire a cartridge. However, subsequent release of the trigger bar permits the lower leaf of the spring 24 to swing the sear member in a clockwise direction and to bring the toe-piece 16 behind the shoulder 12 so that the hammer is prevented from turning in an anti-clockwise direction such as would cause the firing pin 8 to extend through the opening 6, until after the hammer again has been cocked and fired.

As will be noted from Figs. 4 and 6 the lower portion of the barrel is provided with a thick downward extension through which the pivot pin 4 passes. The thickened extension extends back to the rear end of the cylinder and has a bore 29' extending inwardly from its inner or rear end to receive a plunger 30 of a shell ejector, the head 31 of which has a projection 32 adapted to lie beneath the flange of a cartridge in the barrel 3. A spring 33 in the bore 29' behind the plunger 30 tends to move the ejector rearwardly in the bore so that when the pistol is opened or broken the force of the spring 33 will cause the ejector to move rearwardly in the bore and eject a cartridge from the barrel 3. A set screw 34 extends through the extension from the lower side and into a groove 35 in the plunger 30 to limit the movement of the ejector when a shell is being ejected from the barrel. A second plunger 36 extending into a bore 37 above the bore 29' maintains the ejector in proper position at all times and assists in guiding it in its movement.

A barrel latch 38 is pivoted between upstanding lugs 39 at the inner or rear end of the barrel 3. The latch 38 is generally T-shaped, as shown in Fig. 2. The stem of the latch is adapted to be received in a recess 41 in an upward extension

of the base plate 5 while the projecting portions at each side of the stem are adapted to lie behind the upward extension of the base plate to maintain the barrel 3 in closed position. A leaf spring 42 bears against a rear extension 43 of the latch 38 and exerts its force to swing the latch member in a clockwise direction to maintain it in latching position. However, the extensions of the latch member may be gripped between one's thumb and forefinger and the latch lifted against the force exerted by the spring to permit the pistol to be opened, or broken, as shown in Fig. 3.

While the present invention has been described with particular reference to a signal or similar pistol it will be understood that the various features thereof are not necessarily limited to pistols of that type but may be used in connection with pistols or revolvers for firing the more conventional type of cartridges.

I claim:

1. A pistol comprising a body portion, a hand grip extending from the rear part of the body portion, a hammer pivoted within the body portion, said hammer having a shoulder on its periphery, a trigger bar pivoted at one end of the handle, said trigger bar extending along one side of the hand grip and movable in a slot therein, a sear member pivoted intermediate its length within the hand grip and extending generally parallel to the trigger bar, the sear member having a toe-piece at one end engageable with said shoulder on the hammer to hold the hammer in cocked position, the other end of the sear member being so positioned with respect to the trigger bar that inward movement of the trigger bar causes it to engage said other end of the sear member and rotate the sear member about its pivotal point to disengage the toe-piece from behind said shoulder on the hammer, and a leaf spring mounted within the hand grip, one end of the leaf spring exerting a force on the sear member in a direction to rotate it about its pivotal point in a direction to bring the toe-piece thereof into engagement with the shouldered periphery of the hammer and to move said other end toward the trigger bar, the other end of the leaf spring exerting a force on the hammer tending to move it to firing position.

2. A pistol comprising a body portion, a hand grip extending from the rear part of the body portion, a hammer pivoted within the body portion, said hammer having a shoulder upon its periphery, a trigger bar movable in a slot in the forward side of the hand grip, a sear member pivoted intermediate its length within the hand grip and extending generally parallel to the trigger bar, the sear member having a toe-piece at one side of its pivotal point engageable with said shoulder on the hammer to hold the hammer in cocked position, the sear member at the other side of the pivotal point being so positioned with respect to the trigger bar that inward movement of the trigger bar causes it to engage the sear member and to rotate it about its pivotal point to disengage the toe-piece from behind said shoulder on the hammer, spring means within the hand grip exerting a force on the sear member in a direction to rotate it about its pivotal point in a direction to bring the toe-piece thereof into engagement with the shouldered periphery of the hammer and to move the sear member at the other side of the pivotal point toward the trigger bar, and spring means within the hand grip exerting a force on the hammer tending to move it to firing position.

5

3. A pistol comprising a body portion, the body portion including a base plate having an opening therein, a hand grip extending from the rear part of the body portion, a pivoted hammer having a firing pin to be projected through the opening in the base plate to fire a cartridge in the barrel, means for moving the hammer back, after a cartridge in the barrel has been fired, a distance such that the firing pin does not project through the opening in the base plate, the hammer having a pair of shoulders on the periphery thereof, a sear member pivoted intermediate its length within the hand grip and extending in the same general direction as the hand grip, said sear member having a toe-piece at one end arranged to engage behind one of said shoulders on the hammer to hold it in cocked position, and to engage behind the other of said shoulders to hold the firing pin from projecting through the opening in the base plate after the hammer has been moved back after a cartridge has been fired, spring means within the hand grip arranged to exert a force on the sear member to rotate it in a direction to bring the toe-piece thereof into engagement with the shouldered periphery of the hammer and to exert a force against the hammer in a direction to move it to firing position, and a trigger bar mounted for movement in a slot in the forward side of the hand grip and so positioned with respect to the sear member that, when the hammer is in cocked position, inward movement thereof causes it to engage the other end of the sear member and rotate the sear member in a direction to disengage the toe-piece thereof from engagement behind said one of said shoulders and permit the hammer to be moved to firing position.

4. A pistol comprising a body portion, a hand grip extending from the body portion and having a slot in the forward side thereof, a pivoted hammer movable into and out of firing position, a sear

6

member pivoted within the hand grip and intermediate its length, the hammer having a shoulder to be engaged by one end of the sear member to hold the hammer in cocked position, a trigger bar mounted in the slot in the hand grip and extending substantially the entire length of the front side of the hand grip, said trigger bar being pivoted adjacent one end to the hand grip and normally bearing against the other end of the sear member so that inward movement of the trigger bar moves the sear member to cause release of the hammer, a spring within the hand grip exerting its effective force against the sear member in a direction to cause it to move the trigger bar forwardly and out of said slot, and means carried by the trigger bar for preventing it from moving completely out of the hand grip.

JOSEPH W. VAN KARNER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
786,796	Cobb -----	Apr. 11, 1905
100,227	White -----	Feb. 22, 1870
1,226,473	Diehm -----	May 15, 1917
891,743	Tambour -----	June 23, 1908
720,775	Beckwith -----	Feb. 17, 1903
496,589	Barrow -----	May 2, 1893
898,717	Bowker -----	Sept. 15, 1908
855,227	Bull -----	May 28, 1907
2,351,263	Jackson -----	June 13, 1944
695,242	Snyder -----	Mar. 11, 1902
1,070,145	Lewis -----	Aug. 12, 1913

FOREIGN PATENTS

Number	Country	Date
326,260	France -----	Nov. 21, 1902