

June 13, 1944.

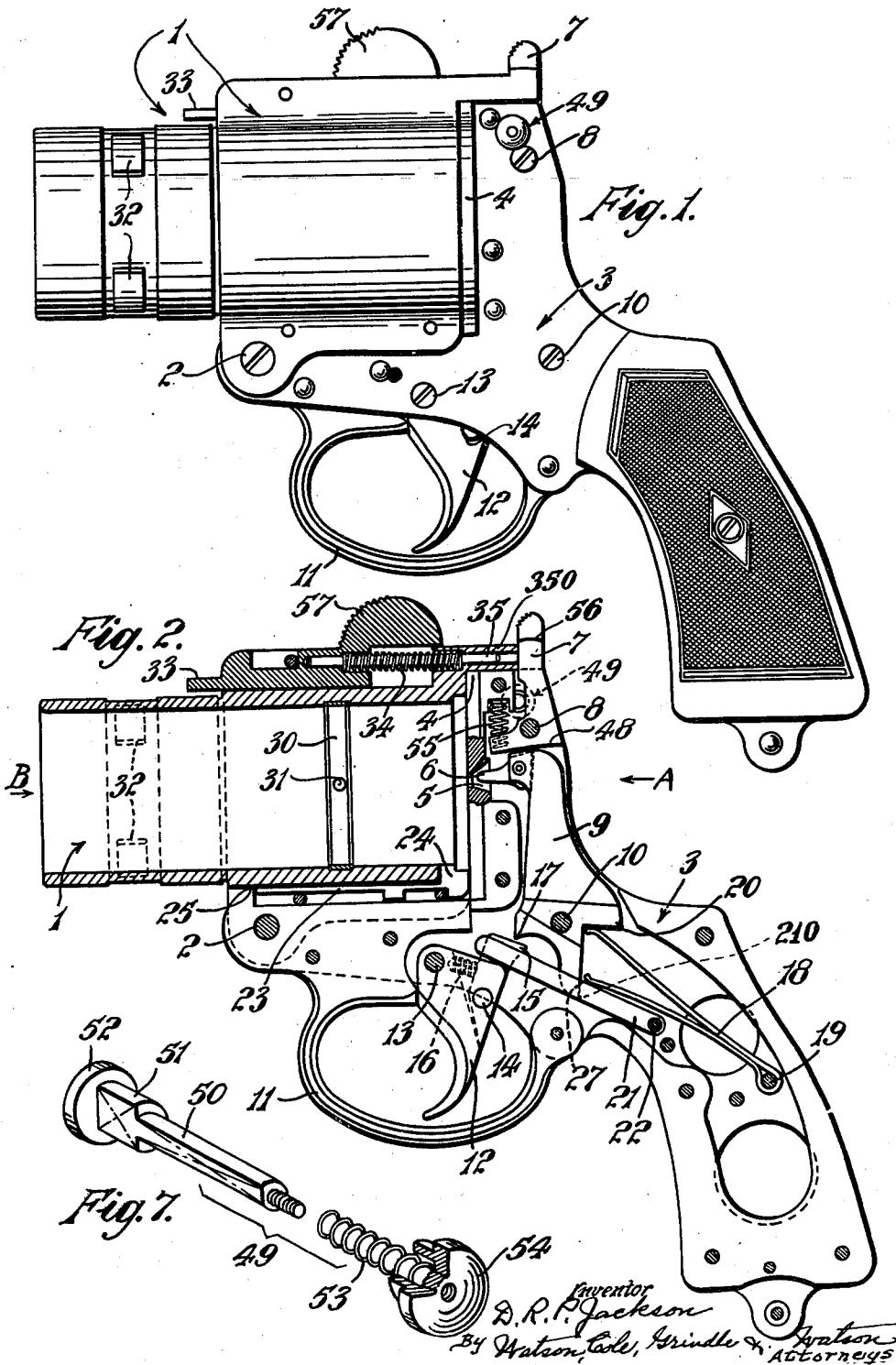
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2,351,268

SIGNAL PISTOL

Filed Feb. 10, 1942

2 Sheets-Sheet 1



June 13, 1944.

D. R. P. JACKSON

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SIGNAL PISTOL

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2 Sheets-Sheet 2

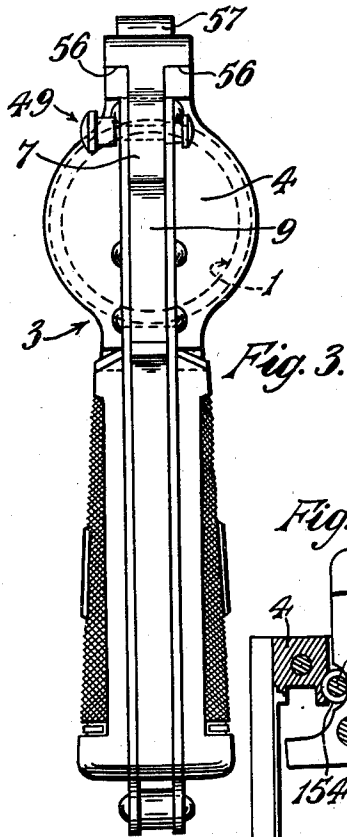


Fig. 3.

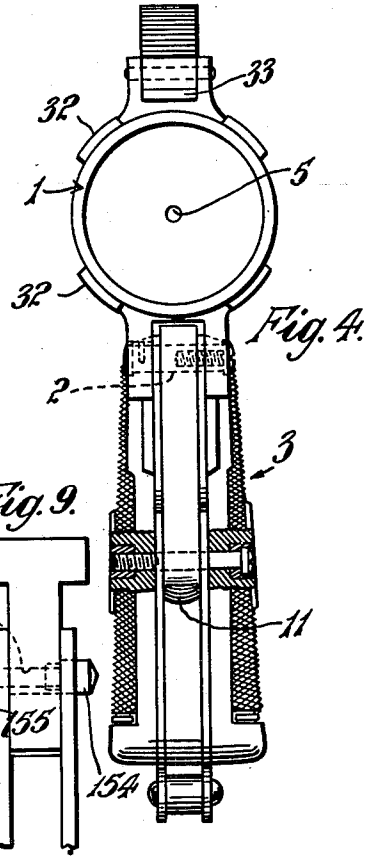


Fig. 4.

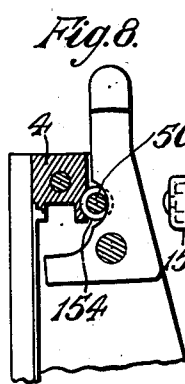


Fig. 8.

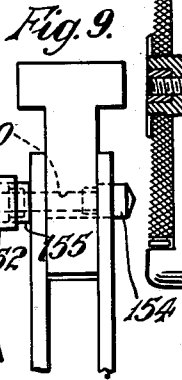


Fig. 9.

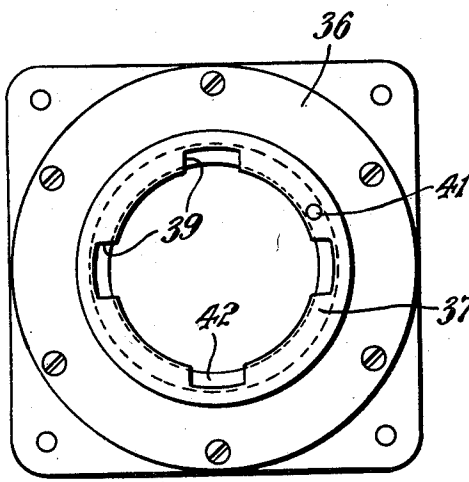


Fig. 5.

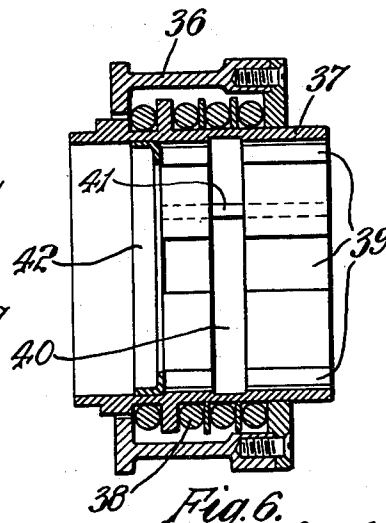


Fig. 6.

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# UNITED STATES PATENT OFFICE

2,351,268

## SIGNAL PISTOL

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5 Claims. (Cl. 42—41)

This invention concerns an improved signal pistol of the kind adapted to discharge light signals, such as Very lights, and to be used with a tubular discharge port adapted for attachment to aircraft and other vehicles or structures, said pistol having a spring loaded movable element applied to its body for engagement with the breech end of a pivoted barrel to secure the latter in its closed position, and requiring hand operation to release the barrel from its closed position, and a catch device adapted to co-operate with the discharge port to lock and release the coupling between the pistol and the port. Such a signal pistol is referred to hereinafter as a signal pistol of the kind referred to.

According to the present invention there is provided a signal pistol of the kind referred to, wherein the spring loaded movable element comprises a pivoted member pivotally mounted on the breech block above the hammer and spring urged to hold the breech block closed, and adapted when the catch device is in the release position to swing about its pivot so that a surface of the pivoted member engages the top of the hammer to prevent cocking, or effective trigger operation, of the latter.

Further according to the present invention there is provided a signal pistol as set forth in the preceding paragraph comprising a safety catch (e. g. a spring loaded bolt) adapted to move upon the operation of the pivoted member when the latter swings to prevent cocking of the trigger and prevent the pivoted member from returning to its original position (e. g. by accident) until the safety catch is manually operated to release the pivoted member.

One embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is an elevation of the pistol.

Figure 2 is a section of Figure 1.

Figure 3 is an end view of Figure 2 in the direction of arrow A.

Figure 4 is an end view of Figure 2 in the direction of arrow B.

Figure 5 is an end elevation of the mounting or discharge port member.

Figure 6 is a section of Figure 5.

Figure 7 shows details of a safety catch.

Figure 8 shows a fragment of Figure 3 illustrating a modified form of safety catch.

Figure 9 is an end elevation of Figure 8.

Referring to the drawings, the pistol comprises a barrel indicated generally by the reference 1, which is pivoted at 2 to the body of the pistol,

indicated generally by the reference 3. The pivot for the barrel is arranged below the barrel at a position which is substantially midway along the length of the barrel. On the body there is provided a shield 4 which is adapted to cover the breech of the pistol. A substantially conical shaped aperture 5, Figure 2, is provided in the shield, the smaller end of the aperture being located on that side of the shield which faces the breech. The aperture provides a passage to permit the striker 6 of the pistol to engage the cartridge in the breech and so to fire the pistol. A pivoted locking member or pawl 7 is pivoted to the body at a position 8 behind the shield and is adapted to lock the barrel relatively to the body with the breech covered by the shield so that the pistol, when loaded, is ready to be discharged. The member 7 is urged by a spring 55 into the position shown in Figure 2 and side lugs 56 engage corresponding parts of the barrel and retain the latter firmly in position against the shield 4.

The striker is pivoted to a hammer 9 which in turn is pivoted at 10 to the body of the pistol. The movement of the striker relatively to the hammer is quite small but is sufficient to permit the striker to enter the aperture 5 in the shield along a relatively straight line path instead of an arcuate path as would be the case if the striker and hammer were formed as one piece.

The body is also provided with a trigger guard 11 and a trigger 12, the latter being pivoted at 13 to the body. To the trigger there is pivoted at 14 a hammer operating member 15 which is located in a slot in the trigger and which is controlled by a compression spring 16. As the trigger is pulled, the operating member is moved through an arcuate path and engages a projection 17 on the hammer. This engagement of the hammer by the operating member causes the hammer to be moved rearwardly about its pivot 10. Continued movement of the operating member moves the latter out of engagement with the hammer, thus releasing the latter which is then moved quickly about its pivot in the reverse direction by one leg of a double leaf spring 18, thus firing the pistol, assuming it is loaded. The leaf spring is looped about a pivot 19 located in the body of the pistol and one limb of the spring engages one tail 20 of two tails 20 and 27 formed on the hammer. The other limb of the spring engages a bar 21 pivoted at 22, and an end of which rests upon the trigger and this other limb returns the trigger when the latter is released.

Operation of the trigger to effect the discharge

of the pistol, causes the free end of the bar 21 to be moved upwardly and a lateral shoulder 210 on the bar is thereby moved to a position at which it does not engage the other tail 27 of the hammer. When the trigger is released, the lateral shoulder 210 engages the said other tail 27 and again moves the hammer about its pivot rearwardly to an extent such that the striker is withdrawn into the aperture in the shield to ensure that the striker does not interfere with the reloading of the pistol (i. e. the parts are in the position shown in Figure 2).

A discharged cartridge is ejected from the pistol by an extractor 23 which is slidably mounted on the underside of the barrel. The extractor has, at one end, a projection 24 arranged to engage the rim of a cartridge and is operated by releasing the barrel and rotating it about its pivot. This rotation of the barrel causes that end of the extractor which is opposite to that at which the projection 24 is located to be engaged by an abutment 25 on the body. The abutment is disposed just above the pivot for the barrel, so that rotation of the latter about the pivot to open the breech causes the extractor to slide towards the shield and so to move the discharged cartridge from the breech.

In the barrel is mounted a spring ring 30 having projections 31 to grip the cardboard cartridge tube as sometimes these are rather loose and might fall out when a pistol pointing upwardly is being loaded.

In order to mount the pistol on the fuselage of an aircraft, the barrel of the pistol is provided at a convenient distance from the muzzle of the barrel, with four radial projections 32 which are equispaced around the barrel. These projections are arranged to engage with a holder described below. On the upper part of the pistol there is provided a catch device comprising a bolt 33 which is arranged to slide relatively to the barrel and which is centrally disposed between two of the radial projections on the barrel. A spring 34 is provided to urge the bolt towards the muzzle of the barrel and a serrated thumb-hold 57 is provided to enable a user to retract the bolt. This spring is arranged to surround a pin 35 which projects from the rear of the bolt through a projection 350 formed on the barrel, such projection being engaged by the pivoted locking member above referred to. When the bolt is moved away from the muzzle of the pistol against the action of the spring controlling the bolt, the pin fixed to the bolt is adapted to engage the pivoted pawl. The operation of these parts will be described below.

The pistol is arranged to be inserted into a holder or mounting comprising a discharge port, Figures 5 and 6, which is secured to the fuselage of the aircraft, the holder being suitably constructed to absorb the recoil of the pistol when the latter is discharged. The method adopted to absorb the shock of the recoil is to construct the holder in two parts, 36 and 37, the part 36 being rigidly secured to the fuselage while the other part 37 is movable relatively to the fixed part and means, such as a plurality of rubber rings 38 are included between the fixed and movable parts to absorb the shock due to the recoil. The movable part of the holder is provided with a bore into which the pistol barrel is moved lengthwise. The movable part of the holder is also provided with four guide-grooves 39 which are equally spaced around the bore and which

are parallel with the axis of the bore and communicate therewith.

At a predetermined position along the guide-grooves there is provided in the holder an annular groove 40 which communicates with the guide-grooves and which serves to locate the radial projections on the pistol barrel when the latter is in position in the holder.

The method of inserting the pistol into the holder is to align the radial projections on the pistol barrel with the guide-grooves and then to push the barrel lengthwise along the guide-grooves as far as it will go when the radial projections are thereby brought into alignment with the annular groove. The pistol barrel is then moved angularly (i. e. turned) so that the projections are moved along the annular groove and out of alignment with the guide-grooves. A stop pin 41 is provided to determine the extent of the angular movement of the barrel. By reason of this movement the pistol barrel is held by the holder against any substantial movement in a lengthwise direction. The angular movement of the barrel is continued until a radial projection engages the stop-pin when the bolt on the pistol-barrel is urged by its spring into one of the guide-grooves. When the bolt is in position in one of the guide-grooves, the pistol-barrel is held against any further substantial angular movement. By this means the pistol is securely held by the holder. To remove the pistol from the mounting the bolt 33 is retracted by pressure on the thumb-piece 57 and the barrel is turned in the opposite direction, whereupon it may be drawn out of the mounting.

It will be seen that when the pistol is assembled in the mounting two of the grooves 39 are open, that is there is a passage through them from the exterior of the aeroplane. To prevent accidents by a blow-back through these holes a ring 42, Figures 5 and 6, is pressed in the part 37.

A cover plate may be provided to close the aperture in the mounting when the pistol is not in position.

It will be seen that if the pistol is not properly fitted in the mounting the bolt 33 will not enter the slot 39 and in consequence the pin 35 will press against the pivoted member 7 and a tail 48 on the member will therefore project into the path of the hammer so that the hammer is prevented from moving rearwardly sufficiently to allow the hammer to be cocked, however hard the trigger may be pulled.

When, however, the pistol is taken out of its mounting for independent use, the pivoted member 7 can move back to its normal position as soon as the thumb-piece 57 is released and thus the pistol might be fired accidentally. To prevent this there is provided a safety catch indicated generally by 49 consisting of a small bolt slidable in the body and having a shoulder formed on it of larger diameter than the shank of the bolt. As shown in Figure 3, the catch is in the "off" position and the trigger may be pulled to fire the pistol. As soon, however, as the member 7 is moved back, by pressure on the bolt 33 or direct application to the serrated head of the member, the catch-bolt moves to the left (Figure 3) under pressure of a spring and the pivoted member cannot return to its normal position, where the trigger can be cocked, until the left hand knob of the catch-bolt is pressed. When this is done, the pivoted member springs in to its normal position as soon as the shoulder has cleared the face of said member. In ordi-

nary use, supposing the pistol to have been removed from the mounting for some reason, the pistol is loaded and the safety catch put in the "on" position by pulling back the member 7 (whereupon the bolt automatically springs to the "on" position) and then the muzzle of the barrel is inserted in the hole in the mounting and turned and the catch bolt shoots home, after which the safety catch is pressed in to bring it to the "off" position and the pistol is ready for use. If the pistol is already in the mounting it may be fired and then opened to eject the cartridge case by releasing the pivoted member and swinging the butt around the hinge pin and then reloaded and closed, all operations being performed while the pistol is still in the mounting.

The details of the catch are shown in Figure 7 where it will be seen that the bolt 50 has a shoulder 51 on it and both parts are flat at one side. The flat side which is thus made for the sake of clearance also lies against the surface of part of the shield 4 and prevents the bolt from rotation, which might unscrew the nut 54 shown in the view. This part may however be riveted on the bolt 50. A head 52 forms a retainer for the bolt which is fitted in the body of the pistol, a spring 53 is placed over the other end and a nut 54 is screwed on. The nut also forms a button which can be pressed to release the catch.

In Figures 8 and 9 a modified form of safety catch is shown. In this example the bolt 50 is cylindrical and provided with an integral head 54 corresponding to the nut 54 in the previous case. The pivoted member 7 is cut away as shown in Figure 8 to clear the shank of the bolt. Instead of the head 52 there is provided a cup 52 riveted to the shank of the bolt and a smaller cup 55 is also provided loose on the bolt and slidable in the cup 52. Inside these cups is placed a compression spring (not shown) encircling the bolt. The part 4 is cut away as shown in Figure 8 to an arc corresponding in radius to the radius of the head 54. When the member 7 moves about its pivot in a clockwise direction Figure 8, the bolt can move to the left in Figure 9 as the head can then pass the arcuate clearance in the member 7. The head is arrested by the bottom of the arcuate clearance in the part 4.

What I claim as my invention and desire to secure by Letters Patent is:

1. In a breech-loading pistol of the type having a body, a barrel pivoted to the body, and a hammer on the body, the combination with a latch for retaining said barrel in firing position with respect to the body, said latch being yieldingly urged to barrel retaining position, of means displaceable with said latch on movement thereof from barrel retaining position for locking said hammer against displacement to cocked position, and a manually releasable spring-pressed detent for locking said latch against unintentional displacement from hammer locking position.

2. A signal pistol comprising a pivotally mounted barrel, firing mechanism, a spring loaded movable element for locking the barrel in the closed position, means associated with said element and the firing mechanism to prevent effective operation of the firing mechanism on movement of the movable element, and a spring loaded safety catch adapted on movement of the said movable element to a position to prevent operation of the firing mechanism to spring into a position to prevent return of the said movable element to its original position.

3. A signal pistol comprising a pivotally mounted barrel, firing mechanism including a pivoted hammer, a spring loaded pivoted element for locking the barrel in the closed position, the said pivoted element having a surface so arranged and located as to engage the tip of the hammer to prevent effective operation of the firing mechanism, and a spring loaded safety catch adapted on movement of the said movable element to a position to prevent operation of the firing mechanism to spring into a position to prevent return of the said movable element to its original position.

4. A signal pistol comprising a pivotally mounted barrel, firing mechanism, a spring loaded movable element for locking the barrel in the closed position, means associated with said element and the firing mechanism to prevent effective operation of the firing mechanism on movement of the movable element, and a spring loaded safety catch comprising a bolt having an abutment which is adapted to engage the movable element when the latter is in a position to lock the barrel in the closed position, whereby the bolt is prevented from moving under its spring, said abutment being adapted to be clear of the movable element at other times to allow the bolt to spring forward, whereby on movement of said movable element the abutment moves into a position to prevent return of the said movable element to its original position.

5. A signal pistol comprising a pivotally mounted barrel, firing mechanism including a pivoted hammer, a spring loaded pivoted element for locking the barrel in the closed position, the said pivoted element having a surface so arranged and located as to engage the tip of the hammer to prevent effective operation of the firing mechanism, and a spring loaded safety catch comprising a bolt having an abutment which is shaped to engage the movable element when the latter is in a position to lock the barrel in the closed position whereby the bolt is prevented from moving under its spring, said abutment being adapted to be clear of the movable element at other times to allow the bolt to spring forward, whereby on movement of said movable element the abutment moves into a position to prevent return of the said movable element to its original position.

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