July 10, 1923. 1,461,387

J. W. FEARN

AUTOMATIC PISTOL AND OTHER SMALL ARM

Filed Jan. 13, 1922

Fig. 1.

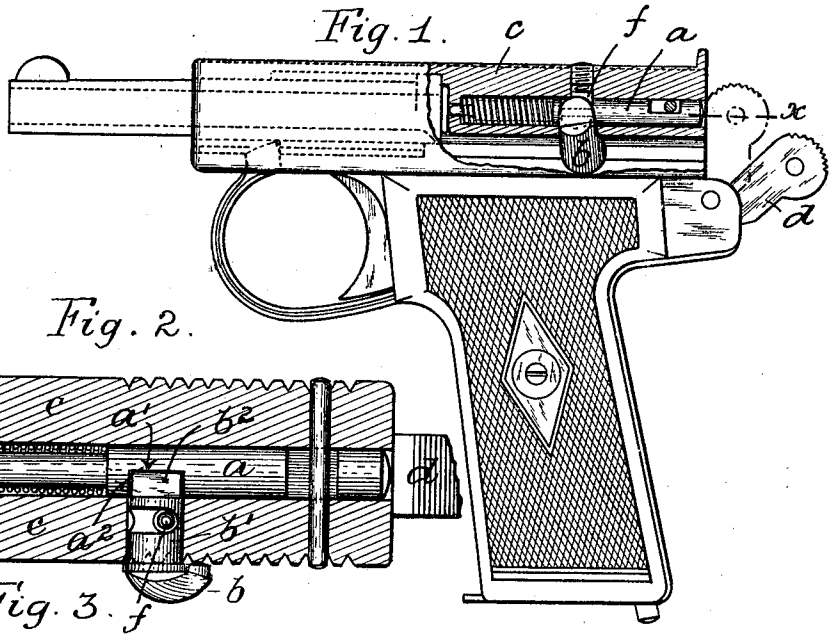



Fig. 2.




Fig. 3.

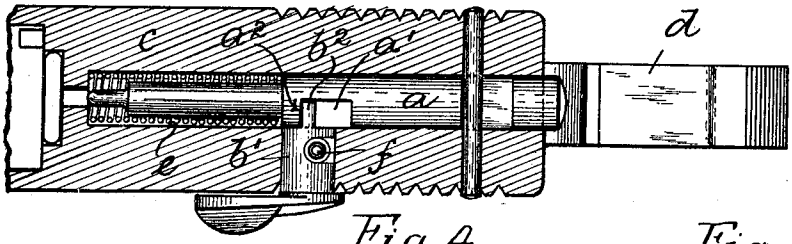



Fig. 4.

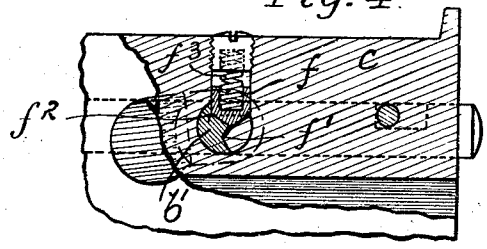
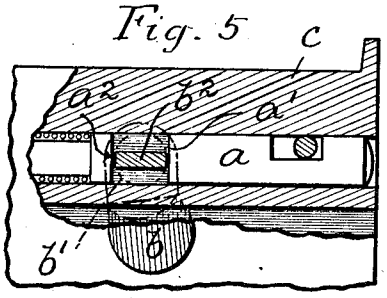



Fig. 5




Inventor:-
John William Fearn.
By J. Walter Fowler
Attorney.

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# UNITED STATES PATENT OFFICE.

JOHN WILLIAM FEARN, OF BIRMINGHAM, ENGLAND.

## AUTOMATIC PISTOL AND OTHER SMALL ARM.

Application filed January 13, 1922. Serial No. 529,023.

*To all whom it may concern:*

Be it known that I, JOHN WILLIAM FEARN, a subject of the King of Great Britain, residing at 91 Weaman Street, Birmingham, England, have invented certain new and useful Improvements in Automatic Pistols and Other Small Arms, of which the following is a specification.

This invention has reference to automatic pistols and similar small arms of the type wherein the striker or firing pin is mounted in a recoiling breech-sleeve or similar member and is actuated by a hammer or tumbler that is pivoted on the frame or body of the arm; the said invention consisting of a safety system that is adapted to render the weapon safe against accidental discharge by locking the striker to the breech-sleeve or the like; the said safety being preferably arranged so that, before actually locking the striker, it will displace the said striker to such an extent and in such a direction as will obviate any possibility of the same being struck by the hammer or tumbler in the event of the latter being jarred out of bent or released from its retaining sear or the like.

Thus, a pistol or fire arm embodying the said invention can, after the displacement and locking of the striker has been effected by the safety device, be carried with the hammer at full cock without risk of an accidental discharge occurring.

According to the preferred application of the invention as applied to an automatic pistol of the above-mentioned type, the safety catch is mounted in the side of the recoiling breech sleeve and comprises an operating lever whose axis pin is formed with a cam that engages directly with a recess in the striker; the formation of the said cam and striker-recess being such that when the safety is "off", the said striker is free to be displaced forwardly on being struck by the hammer or tumbler and to be returned, after each hammer-impact, to its normal position by the striker spring, whereas when the external lever is actuated for applying the safety, the axis-pin cam first projects or displaces the striker in the breech-sleeve through a distance sufficient to take its rear end completely out of the range of the falling hammer, and then positively locks the said striker to the breech sleeve, with the striker spring under compression, so that when the safety is again taken off, the spring will act to restore the striker to its normal relationship with the hammer.

In the accompanying drawings, which show an automatic pistol fitted with a striker-locking safety-catch according to the preferred form of the invention,

Figure 1 is a complete view of the pistol showing the disposition of the safety catch on the recoiling sleeve.

Figure 2 is an enlarged section of Figure 1, on the dotted line $x$, with the striker projected and locked at "safe."

Figure 3 is a similar section, but showing the striker in the position in which it is held by the striker-spring when the safe is taken off.

Figure 4 is a sectional view showing the arrangement of an auxiliary safety-retaining device that is combined with the catch to spring-lock the same in its "on" and "off" positions.

Figure 5 is a longitudinal section showing the striker in elevation and part of the safety-catch in section.

The safety-catch illustrated in these figures is adapted to first project and then lock the striker in the manner above described and comprises an external lever or finger piece $b$ which is located on the side of the breech-sleeve $c$ and whose axis-pin $b'$ has its bearing in a hole drilled through the said sleeve at right angles to, and in the same plane, as the hole that contains the striker $a$ and its spring $e$. The inner end of the axis pin is formed with a cam-piece $b^2$ which consists of a tongue or rib that is disposed across the diameter of the said pin whilst the side of the striker is formed with a recess $a'$ which is engaged by the safety-catch cam as shown in Figures 2, 3 and 5.

Normally, or when the safety is "off", the cam-tongue occupies a position perpendicular to the length of the striker-recess as shown in Figure 3, and the striker is held by the thrust of its spring $e$, in a position wherein the front or forward shoulder $a^2$ of the recess bears against the side of the cam, leaving the striker with its rear end projecting beyond the back face of the breech-sleeve, and with a capacity to make a sufficient forward or inward movement (corresponding to the length of the unoccupied part of the recess) for impinging its nose on the cartridge cap when struck by the hammer, whereas when the external lever is

shifted to the "safe" position by turning the same through an angle of 90 degrees, the movement imparted to the axis pin causes the cam to first act against the shoulder $b^2$ of the recess and push the striker forwards into the forward position (Figures 2 and 5) where its rear end is out of reach of the falling hammer $d$, whilst on completion of the lever movement the cams come into a horizontal position in the plane of the striker axis in which it occupies the whole length of the recess and thus positively locks the striker against movement in either direction.

The safety catch itself is retained in both its "on" and "off" positions by an auxiliary spring bolt which may consist of a spring-actuated plunger $f$ suitably housed in the breech-sleeve, and adapted to engage with one or other of two recesses $f'$, $f^2$ that are formed in the safety axis-pin in such relative positions that when the plunger is in engagement with the recess $f'$, it holds the safety in the "on" or "safe" position, whilst when engaged with the other notch $f^2$ (as shown in Figure 4) it holds the catch in the "off" position; the spring $f^3$ allowing the plunger to yield (when the safety-lever is positively operated) to permit of the rotational or angular movement of the safety cam from the one position to the other.

As the cam end of the safety-catch axis pin is constantly in engagement with the striker, the device above described also serves as a striker stop and eliminates the necessity of providing a separate stop or pin for retaining the said striker in position within the breech-sleeve.

Instead of providing for the locking, or projection and locking of the striker by a cam formation on a rotary axis pin, the operations may be performed by a sliding catch or device which is so mounted in the breech-sleeve as to be displaceable in a direction at right angles to the striker and is provided with a cam-acting part that engages with a suitably-formed recess in the said striker. Or a cam or similar formation on the displaceable catch or slide may, in some cases, be arranged to act on or engage with a projection or projections on the striker in any manner which will effect the locking of such striker after the same has been moved forward or taken out of the reach of the hammer by the initial movement of the displaceable device.

The application of the invention to other small arms wherein a striker or firing pin is mounted in a recoiling breech-sleeve differs in no essential respect from its application to an automatic pistol having an external hammer as herein described.

Having described my invention, what I claim and desire to secure by Letters Patent is:—

1. A striker-locking safety comprising a rotatable element which is mounted in the part that carries the striker and is provided with a cam piece engaging a recess in the said striker: the arrangement being such that when the safety element is rotated from the "off" to the "on" position, it first projects the striker beyond the reach of the hammer and then positively locks the same against movement in either direction; the striker spring being compressed during the projection so that it operates to automatically restore the striker to its normal position when the safety is taken off.

2. A striker-locking safety according to claim 1, wherein the safety element is combined with an auxiliary spring bolt or locking device for retaining the safety in either its "on" or "off" positions.

In testimony whereof I hereunto affix my signature.

JOHN WILLIAM FEARN.