No. 891,510. PATENTED JUNE 23, 1908.

G. H. TANSLEY.

FIRING PIN LOCKING DEVICE FOR FIREARMS.

APPLICATION FILED NOV. 14, 1907.

Fig. 2.

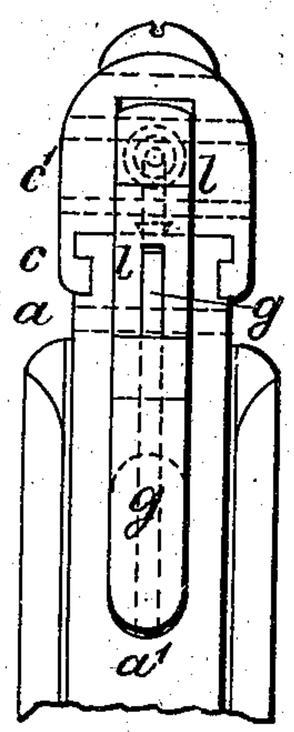


Fig. 1.

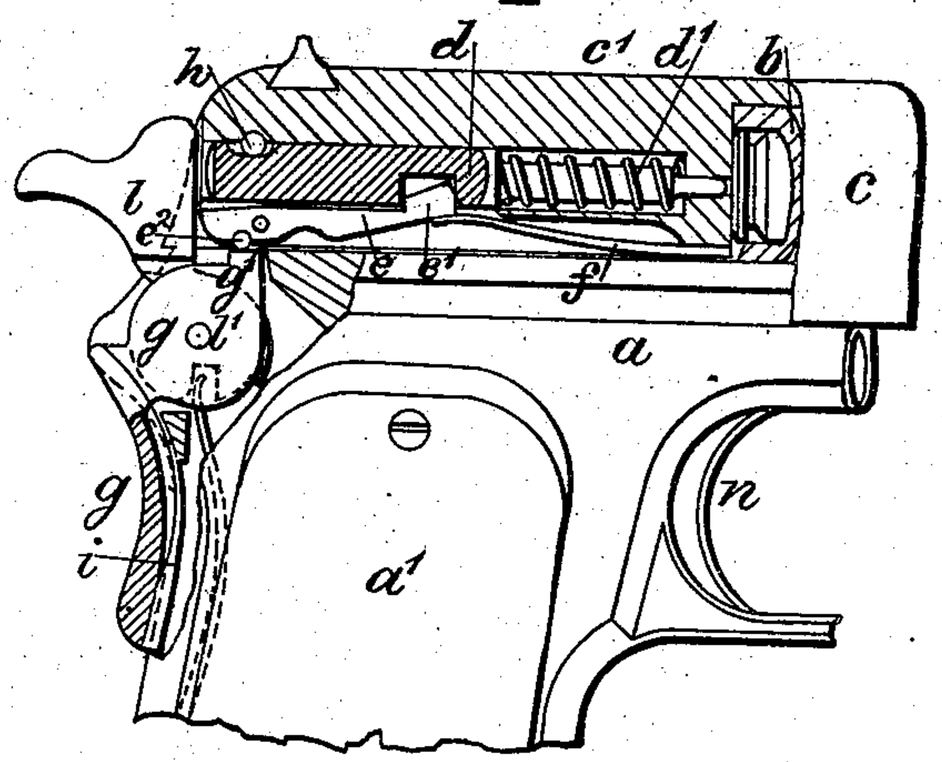


Fig. 5.

Fig. 6.

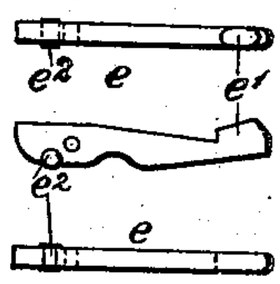


Fig. 4.

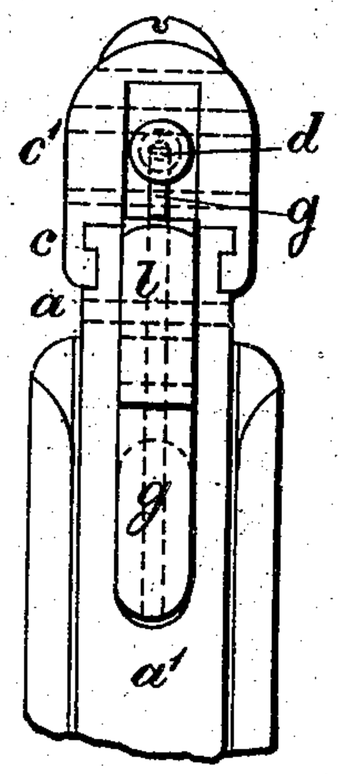


Fig. 3.

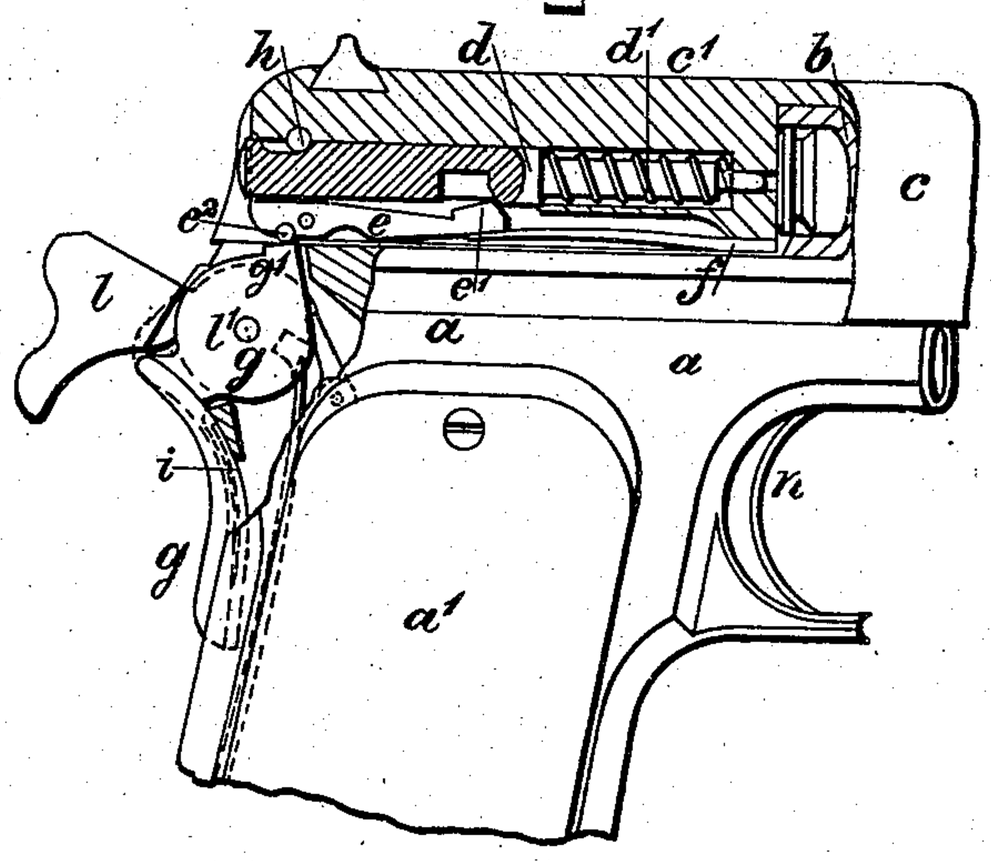
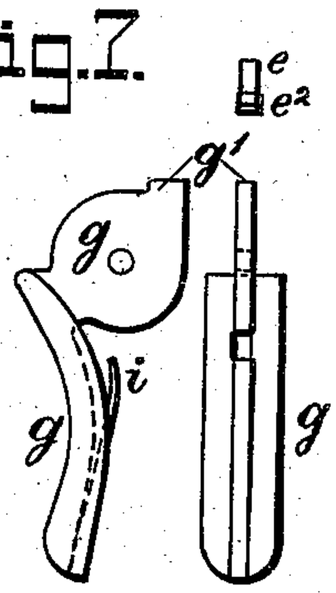


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE H. TANSLEY, OF HARTFORD, CONNECTICUT, ASSIGNOR TO COLT'S PATENT FIRE ARMS MANUFACTURING COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

FIRING-PIN-LOCKING DEVICE FOR FIREARMS.

No. 891,510. Specification of Letters Patent. Patented June 23, 1908.

Application filed November 14, 1907. Serial No. 402,144.

To all whom it may concern:

Be it known that I, GEORGE H. TANSLEY, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Firing-Pin-Locking Device for Firearms, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to firing-pin locking devices for firearms in which the breech of the barrel is opened and closed by a breech-bolt carrying a firing-pin movably seated therein, for transmitting the igniting blow from the firing-mechanism to the primer of the cartridge in the barrel, when the breech is closed and the firing-mechanism is operated for firing a shot.

The object of this invention is to positively prevent the dangerous unintentional and accidental firing liable to result from careless drawing or handling of a firearm, when on dropping the arm it should strike either upon the hammer and drive the same forward into contact with the primer of the cartridge in the barrel, or if it should strike endwise upon the muzzle of the barrel with sufficient force to carry the firing-pin by its momentum into contact with the primer of the cartridge. I attain this object by an improved firing-pin locking device of simple and reliable construction, not liable to get out of order, hereinafter fully described and claimed and illustrated in the accompanying drawings.

The invention is herein shown embodied in a recoil-operated magazine-pistol, but it will be understood that the invention is applicable to other firearms, therefore, it is not intended to restrict the present invention to use in magazine-pistols, nor to any particular kind of firearms.

In the accompanying drawings Figure 1 represents the rear portion of a well-known Colt automatic pistol, partly in longitudinal vertical section, with the breech closed and the hammer down, and the firing-pin positively locked against movement. Fig. 2 represents a rear end view of the same, with the parts in the position as in Fig. 1. Fig. 3 represents a side elevation, partly in longitudinal section, similar to Fig. 1, but with the hammer cocked and the firing-pin released, as by a grasp upon the grip of the pistol, and ready for operation by a pull upon the trigger. Fig. 4 represents a rear end view of the same, similar to Fig. 2, but with the parts in the same position as in Fig. 3. Fig. 5 represents a vertical transverse section of the firing-pin detached, with the locking-dog in a front end view. Fig. 6 represents detail views of the locking-dog detached, respectively a top view, a side elevation, a bottom view and a front end view. Fig. 7 represents detail views of the grip-lever detached, respectively a side elevation and a front end view.

Similar letters refer to similar parts throughout the several views.

In the pistol represented in the drawings, the barrel *b* is supported upon the frame *a* and on top of the frame the breech-slide *c* is fitted to slide rearward and forward, the sides of the breech-slide overlapping the frame and interlocking ribs and grooves on slide and frame holding the breech-slide to the frame and guiding it thereon. The rear part of the breech-slide *c* forms the breech-bolt c^1 adapted to open and close the chamber of the barrel, and the forward part of the breech-slide *c* extends in semi-tubular form and incloses the barrel. On firing a shot the breech-slide and barrel recoil together, then the barrel becomes disengaged from the breech-slide and, the movement of the barrel being arrested, the breech-slide continues to recoil, thus opening the breech; after which the breech-slide is returned forward and interlocked with the barrel, thus closing the breech.

In rear of the barrel the frame and the breech-slide form the receiver and an opening is provided for the ejection of the cartridge-shells, and the breech-bolt carries a firing-pin and an extractor, while an ejector is provided in the receiver.

The frame *a* has the grip or handle a^1 below the receiver, and the hammer *l* and other parts of the firing-mechanism are located in the frame in rear of the grip, while the trigger *n* is located in front of the same. Cartridges may be supplied by the usual cartridge-magazine for holding a number of cartridges and for presenting the cartridges in succession in front of the breech-bolt when the same is in the open rear position, so that in the closing movement the breech-bolt transfers the cartridge to the chamber of the barrel.

All the parts thus far referred to are of the same construction and mode of operation as

those of the well-known Colt automatic pistol, and, forming no part of the present invention, require no further description, nor illustration, except as far as certain features may be referred to hereinafter. Moreover, as will be obvious, these parts may be replaced by other parts of usual or suitable construction.

To make the pistol ready for instant use it must be loaded and cocked, and to enable it to be carried in that condition with perfect safety, I provide it with the firing-pin locking device which comprises the firing-pin locking-dog *e* and the grip-lever *g*.

The firing-pin *d*, of usual form and carried loosely in the central seat of the breech-bolt c^1, is in length slightly shorter than the breech-bolt and may be withdrawn entirely within the same, so as not to project from either the front or the rear of the breech-bolt, as shown in Fig. 1. In rear of the firing-point, the firing-pin is reduced in diameter and carries the usual retraction-spring d^1, which serves to move the firing-pin to the rear to expose the projecting rear end of the same to receive the blow of the hammer, whenever the firing-pin is not locked in the safe non-projecting position; the usual transverse pin *h* fitted in the breech-bolt between two shoulders formed in the top of the firing-pin, serves to limit the rearward movement of the same.

In the bottom of the breech-bolt a central longitudinal groove extends from the rear to within a short distance of the front of the breech-bolt, and in this groove the locking-dog *e* is pivotally mounted, which has the form of a lever with a short rear arm and a long forward arm. At the end of the forward arm the locking-dog *e* carries an upward projection e^1, and the firing-pin *d* has a corresponding recess, and when the projection of the locking-dog is raised so as to stand within the recess in the firing-pin, the firing-pin is positively locked against movement in forward and in rearward direction, in the position where both ends of the firing-pin are within the breech-bolt and do not project from the same, and in which the blow of the hammer is supported by the breech-bolt without affecting the firing-pin, see Fig. 1.

When the forward arm of the locking-dog *e* is lowered, as by the raising of the rear arm of the same, see Fig. 3, the projection e^1 of the locking-dog is withdrawn from the recess in the firing-pin, releasing the same, and the released firing-pin will be at once moved rearward by the spring d^1 to the position in which the rear end of the firing-pin projects from the breech-bolt, ready to receive the blow of the hammer and to transmit it to the primer of the cartridge in the barrel, as shown in Fig. 3.

For automatically raising the forward arm of the locking-dog *e*, the strong flat spring *f* is provided, the forward end of the spring being firmly attached to the bottom of the breech-bolt by a dove-tailed groove, or other suitable means, while the rear end of the spring *f* rests against the forward arm of the locking-dog *e* and yieldingly presses the same upward. The lower forward wall of the recess in the firing-pin is rounded or tapering, inclining downward and forward, and the top of the forward end of the locking-dog *e* is of corresponding form, so that, when the rear arm of the locking-dog is released, the spring *f* at once raises the forward arm and, by the action of the inclining parts, the locking-dog *e* moves the firing-pin forward, to the safe non-projecting position, and, the projection e^1 by fully entering the recess in the firing-pin, locks the same in the safe position.

For raising the rear arm of the locking-dog *e*, the grip-lever *g* is provided. This grip-lever *g* is seated in a central vertical slot cut in the hub of the hammer *l*, so as to bifurcate the same, but so as to leave the portion of the hammer *l* above the hub solid and undivided. In Figs. 1 and 3 the right-hand part of the divided hammer-hub is represented as removed, so as to expose to view the hub of the grip-lever *g* seated within the hammer and pivoted upon the hammer-pivot l^1. Below the hammer the lever *g* extends downward in a central groove in the grip of the pistol, and the lower arm of the lever carries a widened handle which projects in rear from the grip, as shown in Fig. 1, but which may be pressed forward into a correspondingly widened cut in the rear face of the grip, as shown in Fig. 3.

At the top and front the hub of the lever *g* has a short upward protection g^1, which stands, when the lever is in its place, in the frame of the pistol, and when the lower lever arm projects from the grip, under the rear arm of the locking-dog *e*, which, above this projection of the lever, is provided with a small friction-roller e^2 movably seated in the lower face of the rear arm of the locking-dog and resting upon the projection g^1 of the lever *g*.

When the lower arm of the grip-lever *g* is pressed into the grip, as by the grasp upon the grip, as shown in Fig. 3, the projection above the hub is moved upward and thereby the rear arm of the locking-dog *e* is raised, so as to lower the forward arm of the locking-dog and to withdraw the projection e^1 on the same from the recess in the firing-pin, and thus to release the firing-pin, which will be at once moved rearward, so as to project from the breech-bolt and within the reach of the hammer. On releasing the grip, the spring *i* attached to the inside of the handle of the grip-lever *g* forces the lever to the position where it projects from the grip and moves down the projection g^1 at the top of the lever, thereby allowing the rear arm of

the locking-dog *e* to descend and the forward arm of the same to be raised by the spring *f* so as to force the firing-pin forward to the safe non-projecting position and there to securely lock it. This locking and unlocking of the firing-pin is therefore automatically accomplished, without requiring conscious action or attention, by the act of grasping the grip of the pistol preparatory to raising and aiming the arm, as in the act of firing; and by releasing the grasp upon the grip.

The projecting position of the grip-lever, easily perceptible to the touch as well as at a glance, serves to indicate in the dark as well as in the light that the pistol is safely locked.

It will be understood that various changes may be made in the construction and arrangement of details without departing from the spirit of the invention.

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

1. In a breech-loading firearm, the combination of a breech-bolt, a firing-pin mounted therein, a locking-dog pivotally mounted in the breech-bolt to hold the firing-pin in safe position, and a grip-lever coöperating with the dog to release the firing-pin.

2. In a breech-loading firearm, the combination of a breech-bolt, a firing-pin mounted therein, a locking-dog pivotally mounted in the breech-bolt to hold the firing-pin in safe position, a spring acting upon the dog to hold it normally in locking position and manually operated means coöperating with the dog to release the firing-pin.

3. In a breech-loading firearm, the combination of a breech-bolt, a firing-pin mounted therein, a locking-dog pivotally mounted in the breech-bolt to hold the firing-pin in safe position, a spring acting upon the dog to hold it normally in locking position, and a grip-lever coöperating with the dog to release the firing-pin.

4. In a breech-loading firearm, the combination of a breech-bolt, a firing-pin mounted therein and having a locking-recess with a cam-shoulder, a locking-dog pivotally mounted in the breech-bolt and having a cam-lug to coöperate with the recess in the firing-pin and move the firing-pin to and hold it in safe position, and manually operated means coöperating with the dog to release the firing-pin.

5. In a breech-loading firearm, the combination of a breech-bolt, a firing-pin mounted therein and having a locking-recess with a cam-shoulder, a locking-dog pivotally mounted in the breech-bolt and having a cam-lug to coöperate with the recess in the firing-pin to move the firing-pin to and hold it in safe position, and a grip-lever coöperating with the dog to release the firing-pin.

6. In a breech-loading firearm, the combination of a breech-bolt, a firing-pin mounted therein and shorter than the breech-bolt, a locking-dog pivotally mounted in the breech-bolt to hold the firing-pin with its forward end withdrawn from firing position, and manually operated means coöperating with the dog to release the firing-pin.

7. In a breech-loading firearm, the combination of a breech-bolt, a firing-pin mounted therein and shorter than the breech-bolt, a locking-dog pivotally mounted in the breech-bolt to hold the firing-pin with its forward end withdrawn from firing position, and a grip-lever coöperating with the dog to release the firing-pin.

8. In a breech-loading firearm, the combination of a breech-bolt, a firing-pin mounted therein and shorter than the breech-bolt, a locking-dog pivotally mounted in the breech-bolt to hold the firing-pin with its rearward end within the breech-bolt, and manually operated means coöperating with the dog to release the firing-pin.

9. In a breech-loading firearm, the combination of a breech-bolt, a firing-pin mounted therein and shorter than the breech-bolt, a locking-dog pivotally mounted in the breech-bolt to hold the firing-pin with its rearward end within the breech-bolt, and a grip-lever coöperating with the dog to release the firing-pin.

10. In a breech-loading firearm, the combination of a breech-bolt, a firing-pin mounted therein and shorter than the breech-bolt, a locking-dog pivotally mounted in the breech-bolt to hold the firing-pin with its forward end withdrawn from firing position and with its rearward end within the breech-bolt, and manually operated means coöperating with the dog to release the firing-pin.

11. In a breech-loading firearm, the combination of a breech-bolt, a firing-pin mounted therein and shorter than the breech-bolt, a locking-dog pivotally mounted in the breech-bolt to hold the firing-pin with its forward end withdrawn from firing position and with its rearward end within the breech-bolt, and a grip-lever coöperating with the dog to release the firing-pin.

This specification signed and witnessed this 11th day of November, A. D. 1907.

GEORGE H. TANSLEY.

In the presence of—
A. L. ULRICH,
K. POWERS.