No. 644,660. Patented Mar. 6, 1900.

H. M. CALDWELL.

SAFETY LOCK FOR FIREARMS.

(Application filed Dec. 15, 1899.)

(No Model.)

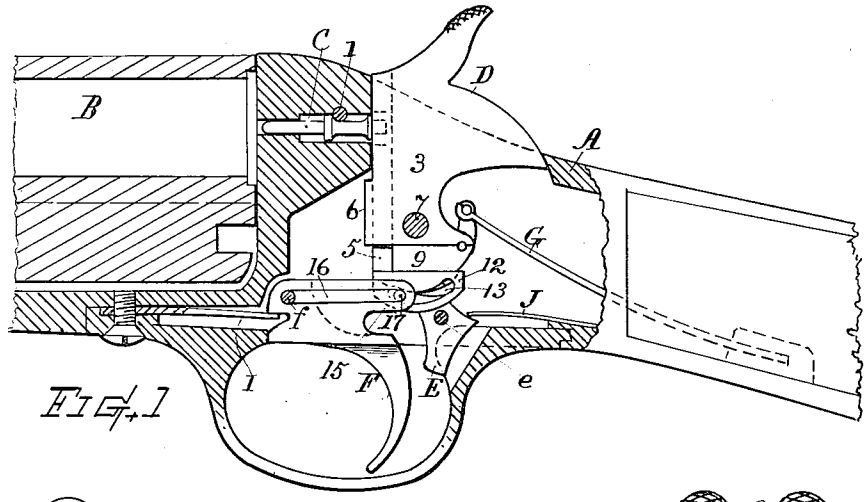


FIG. 1

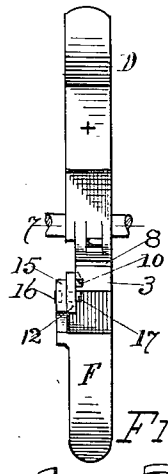


FIG. 3

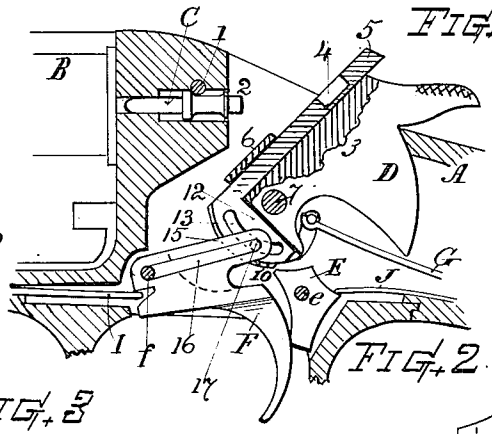


FIG. 2

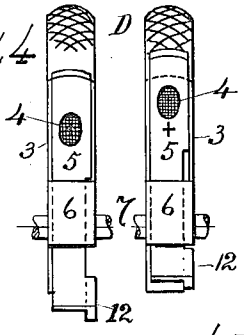


FIG. 4a

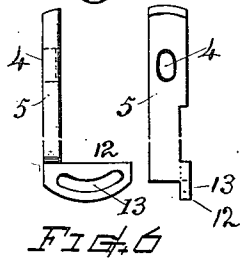


FIG. 6

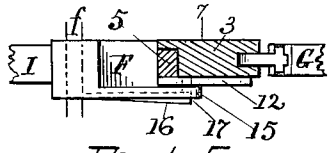


FIG. 5

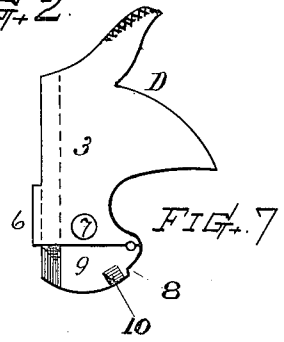


FIG. 7

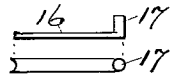


FIG. 8

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UNITED STATES PATENT OFFICE.

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SAFETY-LOCK FOR FIREARMS.

SPECIFICATION forming part of Letters Patent No. 644,660, dated March 6, 1900.

Application filed December 15, 1899. Serial No. 740,421. (No model.)

To all whom it may concern:

Be it known that I, HOMER M. CALDWELL, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Safety-Lock for Firearms, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of my present invention is to provide a simple and efficient safety-lock more especially designed for shotguns or rifles and which will render the gun safe under all conditions and non-dischargeable except by the actual normal motions of cocking and firing in regular and proper order. I attain this object by the mechanism illustrated in the drawings, wherein—

Figure 1 represents a longitudinal section of a gun, showing my improved safety-lock mechanism. Fig. 2 represents a similar view of the mechanism with its parts positioned as at the instant of releasing the cocked hammer by the backward swing of the trigger. Fig. 3 is a rear view of the hammer and trigger separate from the frame. Figs. 4 and 4ª represent the front of the hammer, showing by comparative views the two positions of the movable hammer-face in relation to the hammer-body. Fig. 5 is a horizontal section through the hammer and a top plan of the trigger-head. Fig. 6 shows a detail of the movable hammer-face by separate side and front views. Fig. 7 is a side view of the hammer-body, and Fig. 8 shows a detail of the spring and coupling-stud.

The invention herein illustrated is adapted for that class of firearm-locks termed "single-action," wherein the cocking is independent of the trigger movement, but it is not applicable to the "double-action" style of lock or those wherein the cocking of the hammer is effected by pulling the trigger and in which a hammer-lifter is employed upon the trigger.

In the embodiment of my invention the gun-frame A, barrel B, firing-pin C, and such parts of the gun as are not shown herein may be of well-known or any suitable form and construction. The firing-pin is retained in the opening through the recoil-seat and its movement properly limited by a suitable stay-pin 1, set in the recoil-seat, said firing-pin being adapted to have sufficient endwise movement and its rear end to project from the recoil-seat when at rearward position, as shown at 2.

In accordance with my invention the hammer D is composed of a body portion 3 and a movable hammer-face 5, united with the body in a manner to have endwise sliding movement thereon, said hammer-face being preferably fitted and guided upon the front of the hammer-body by a longitudinal groove on one part and a counter matching adjacent surface upon the other part, the groove being of suitable form to permit longitudinal sliding and prevent lateral displacement. In the present instance the hammer-face is retained on the body by a bridge 6, whereby said movable face is kept at all times firmly against the front of the hammer-body, while it can have easy endwise movement thereon. The hammer-body 3 is pivoted in the frame at 7, and its tumbler-surface is provided with a cock-notch 8 for engagement with the sear E, which latter is pivoted at *e* to act in well-known manner. One side of the tumbler portion of the hammer is reduced by a flat cut-away, as at 9, and a narrow bevel or inclined way 10 is formed in its lower edge adjacent to the notch 8 (see Figs. 3 and 7) and leading onto the side surface 9. The movable hammer-face 5 is so formed as to afford at or near its top end a controllable space within which the end 2 of the firing-pin can enter and rest without contact with the said hammer-body or face-piece when the latter is at normal idle position, but controllable by sliding the hammer-face upward in its groove so the solid metal of the hammer-face takes the place of the space in line with the firing-pin. This space is preferably an oblong cavity or hole 4, bored into or through the hammer-face, as indicated.

The movable hammer-face 5 has integrally or rigidly fixed thereon a backwardly-extending arm or plate 12, through which is formed a segmental curved slot 13, the circular contour of which is preferably concentric to the hammer pivot-axis when the arm 12 is at ele-

vated position. The arm can move up and down the side 9 of the hammer-tumbler, and a corresponding movement of the hammer-face 5 is effected.

The trigger F, which is pivoted in the frame at *f*, I construct, substantially as shown, with an arm 15 upon one side of its head, which arm extends backward adjacent to the arm 12 of the movable hammer-face and has a hole therethrough near its rear end corresponding with the slot 13. Within a longitudinal groove upon the trigger-head I arrange a spring or yielding bar 16, carrying at its end a stud 17, that extends through the hole in the trigger-arm and through the slot 13 in the hammer-face arm 12, thereby flexibly coupling said arms 15 and 12 together. The length of the stud 17 is somewhat greater than the thickness of the metal in the arms, so that when the trigger and hammer-face are at normal idle position the end of the stud 17 will extend under the curved edge of the tumbler or lower part of the hammer-body, as best shown in Fig. 3; but when the hammer is cocked if the trigger is then pulled back the end of said stud can pass up the inclined way 10 onto the side surface 9, this action being permitted by the yielding of the spring 16, which is then pressed outward, as indicated in Fig. 5.

The space 4 affords a recess into which when the movable hammer-face is depressed the head 2 of the firing-pin C can project without liability of the hammer making contact therewith; but when the movable hammer-face 5 is elevated the recess is changed to such an extent that contact of the hammer and firing-pin is effected for driving forward said pin and causing its point to impinge upon the cartridge; but this elevation of the movable hammer-face can take place only when the hammer is cocked and the trigger pulled back. The position of the movable hammer-face in and its relation to the firing-pin is illustrated in Figs. 4 and 4ª. The small cross-marks indicate the firing-pin center.

A suitable mainspring G is connected with the hammer and a trigger-spring I and sear-spring J provided, each arranged and acting in well-known manner.

In the operation the act of drawing back the hammer to bring the cock-notch 8 to the point of the sear E brings the inclined way 10 into line with the stud 17. The trigger can then be pulled back, the stud sliding up the incline 10 onto the side surface 9 of the hammer-body and at the same time moving the slotted arm 12, and thereby sliding the hammer-face 5 to its elevated position. Then as the trigger forces the sear E from the notch 8 the hammer is thrown forward, while the movable hammer-face is held elevated by the slot 13 and stud, so as to contact with the firing-pin, the curvature of the slot 13 and its concentric relation to the pivot-axis 7 permitting the movement of the hammer without change in the relation of the movable hammer-face in respect to the hammer-body during the stroke for a discharge of the cartridge. When the hammer has descended and the trigger is released and swung forward by the action of its spring I, the movable hammer-face is depressed by the downward movement of the stud 17, thus carrying the solid portion of the hammer-face below the contact-line of the firing-pin and presenting thereto the cavity or space, within which the head of said pin is free from contact. The stud 17 also passes below the bottom angle of the hammer-tumbler and the spring 16 causes it to shoot inward and become latched beneath the angle or corner thereof, (see Fig. 3,) thereby securely locking the trigger and movable hammer-face in normal idle position.

When the hammer is down and the trigger is at normal position, the mechanism is locked in a condition of safety. The trigger cannot be moved nor the hammer-face come into contact with the firing-pin, neither can the movable hammer-face be slipped into range with said firing-pin head, until such time as the hammer is cocked in proper manner and the trigger pulled in regular order for effecting a normal discharge. It will also be noticed that by the construction herein shown the trigger remains locked until the sear E has engaged the notch on the hammer-tumbler. Only then will the incline 10 permit the stud to pass up the side of the tumbler as the trigger is pulled. Hence complete cocking is prerequisite to firing, and should the hammer slip from the thumb in the act of cocking no discharge will be effected thereby, or if the hammer slips from the notch when the trigger is not pulled no discharge can occur.

I do not herein claim, broadly, the idea of controlling a safety device by trigger action as my invention, as I am aware that such idea has been heretofore embraced in differently-organized mechanism.

What I claim, and desire to secure by Letters Patent, is—

1. In a firearm-lock mechanism, the hammer having a front recess embracing the contact position, and comprising a hammer-body provided with a movable hammer-face secured to and slidable on the front of the hammer-body for controlling said recess, said movable hammer-face having a rigid arm thereon provided with a slot; in combination, with the trigger, and an endwise-yielding stud carried on said trigger and engaging said slot for moving said hammer-face.

2. In a firearm-lock mechanism, a movable hammer-face united for sliding connection upon the hammer-body, and having an arm provided with a segmental slot, a stud controlled by the trigger and engaging in said slot for moving said hammer-face, and adapted to lock under the hammer-body for retaining the parts at position of safety, substantially as set forth.

3. In combination as described, the pivoted hammer provided with the movable recessed hammer-face united to and sliding in guides

upon the front of the hammer-body, an arm fixed to said movable hammer-face extending backward adjacent to the hammer-tumbler, a curved slot in said arm, a trigger having a backwardly-extended arm, a spring or yielding bar on said trigger-head arm carrying a stud that passes through the slot in the hammer-face arm operatively uniting the adjacent arms and the end of said stud engageable with or beneath a portion of the hammer-body, for the purpose set forth.

4. In a firearm-lock mechanism, the hammer comprising a pivoted hammer-body having the tumbler-surface with cock-notch 8 and inclined way 10 adjacent to said notch, and a movable hammer-face secured in slidable connection with the front of said hammer-body and controlling a space adapted for receiving the firing-pin head, a backwardly-extending segmentally-slotted arm fixed to said hammer-face, a trigger having an arm adjacent to said hammer-face arm and provided with a spring-pressed coupling-stud supported therein and passing through said slotted arm, its end normally engageable beneath the hammer-body, and releasable at said inclined way; in combination with the firing-pin, sear, mainspring and return-springs for said trigger and sear, as set forth.

Witness my hand this 12th day of December, 1899.

HOMER M. CALDWELL.

Witnesses:
CHAS. H. BURLEIGH,
GEORGE F. BROOKS.