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Patented May 15, 1900.

H. M. CALDWELL.

SAFETY MECHANISM FOR DOUBLE ACTION FIREARMS.

(Application filed Feb. 9, 1900.)

(No Model.)

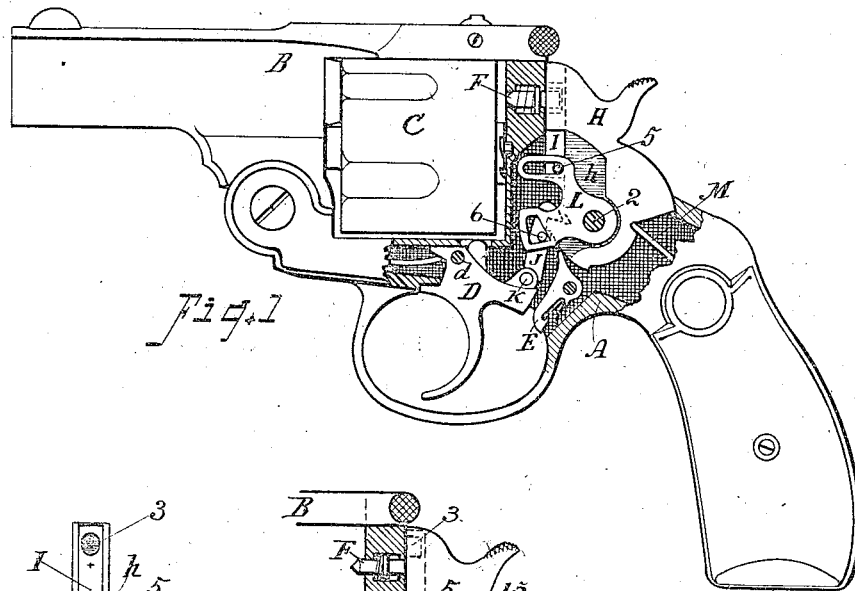


Fig. 1

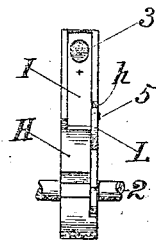


Fig. 3

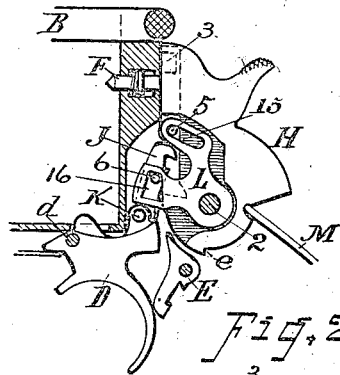


Fig. 2

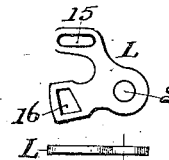


Fig. 4

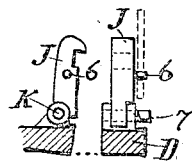


Fig. 6

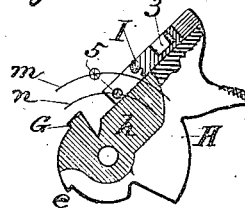


Fig. 5

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SAFETY MECHANISM FOR DOUBLE-ACTION FIREARMS.

SPECIFICATION forming part of Letters Patent No. 649,809, dated May 15, 1900.

Application filed February 9, 1900. Serial No. 4,810. (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 Mechanism for Double-Action 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 objects of my present invention are to provide a simple, inexpensive, and efficient safety appliance especially applicable to double-action lock mechanism of revolvers and other self-cocking firearms; also, to provide therein means adapted for operating a movable or sliding hammer-face, in combination with the double-action hammer-actuating devices, as more fully hereinafter explained. I obtain these objects by the mechanism illustrated in the drawings, wherein—

Figure 1 represents a revolver embodying my invention, a portion of the frame being broken away to clearly show the structure of the lock mechanism, the parts of which are therein delineated as at normal idle position. Fig. 2 represents a side view of the operating parts as at the instant of firing. Fig. 3 represents a detail front view of the hammer, the sliding hammer-face, and the oscillating plate or lever for actuating said face. Fig. 4 shows the detail of the oscillating plate or lever by separate side and top views. Fig. 5 is a separate side view of the hammer, shown partly in section; and Fig. 6 shows, by side and front views, the structure of the lifter with its projecting side pin.

In a separate application for Letters Patent I have shown a safety-lock mechanism embracing the feature of a sliding hammer-face carried upon the front of the hammer, but in combination with actuating means of a different nature from the within-described and unadapted for double-action lock mechanism. It will therefore be understood that my present invention consists in an improved construction and combination of means especially designed for operating a safety sliding hammer-face in double-action

locks and essentially as hereinafter described, whereby such mechanism is maintained in condition of safety excepting when proper discharge action is regularly effected.

Referring to the drawings, A denotes the frame; B, the barrel; C, the cylinder; D, the trigger, pivoted at *d*; E, the sear, and F the firing-pin, all of well-known suitable construction.

H indicates the hammer, which is pivoted to swing upon the transverse axis-pin 2 and in accordance with my invention is provided with a sliding hammer-face I, arranged in connection with the upper front part of the hammer-body and secured thereto by inter-matching grooves or guideways, so as to be firmly retained in connection but capable of easy sliding movement vertically upon the hammer-front. Said hammer-face is recessed, as at 3, or adapted to afford an open space for the firing-pin head when the face I is depressed and to present solid material thereto when the face is elevated. The face-piece I is formed short, so as to stand above the end of the lifter-pawl J, and is furnished with a laterally-projecting pin or stud 5 at or near its lower end. The body of the hammer is formed with the rounded lower end or tumbler notched at *e* for engagement with the sear E and fitted with the usual front recess, notch, or detent G for engagement therewith of the lifter J for cocking. The lifter J is hinged at K to the rear part of the trigger-head for action in well-known manner in the lifting and throw-off of the hammer. I provide said lifter with a projecting pin or stud 6 on the side thereof. (See Fig. 6.)

The pawl or hand for moving the cylinder C is not shown in the present drawings, but is in practice pivoted on the end 7 of the lifter-hinging axis K and operates in the well-known manner.

Adjacent to the side of the hammer-body I arrange a coupling member, plate, or lever L, pivotally mounted upon the hammer-pivoting axis 2 to swing or oscillate thereon independent of the hammer movement. The side of the hammer-body is best milled off or reduced, as at *h*, to afford space for said oscillating plate, which is made flat and com-

paratively thin, as shown in Fig. 4. This oscillating coupler-plate is provided at its upper part with a cam or slot 15, that embraces the pin 5, fixed in the sliding hammer-face I, as indicated, while its lower part has a slot or opening 16, within which loosely engages the stud or pin 6, that projects from the side of the lifter J. The opening 16 is made of such form and ample dimension as will allow the pin 6, which is fixed to the lifter, sufficient play or independent movement within said opening to permit the forward swing of the lifter in its throw-off action when raised and releasing the hammer; also, to afford play for said pin in the direction of the oscillation sufficient to accommodate the variance in extent of movement between that required for the lifter action and the amount of oscillation required for the coupler-plate L in shifting the sliding hammer-face. The coupler plate or member L can be shaped as shown or made of any convenient shape or contour, the cam-slot 15 and opening 16 being formed and located therein relatively to each other substantially as described. The slot 15 is relatively inclined or so disposed that the ends of its opening will respectively range on two circles (see Fig. 5) as the plate is shifted, one circle *m* corresponding to the high position of the slide I and the other circle *n* corresponding to the low position of said slide. Hence at any part of their oscillation the relation of the plate and hammer is such that when the pin 5 is at the fore end of the slot 15 the sliding hammer-face I is then raised, and when said pin is at the rear end of the slot the sliding hammer-face is then depressed relatively to the hammer-body. In the operation when the hammer and trigger are normally down the oscillating plate L is at forward position, the slot 15 is horizontal, and the pin 5 at the rear end of the slot. The sliding hammer-face is then held depressed or at position of safety. (See Fig. 1.) If the hammer is drawn back or thumb-cocked from the position shown in Fig. 1, the pin 5 causes the plate or lever L to oscillate about its pivot, said pin 5, however, remaining at the rear end of the slot 15, and accordingly the sliding hammer-face I remains relatively depressed. In such oscillative movement the lever L may cause a certain movement of the trigger through the pin 6; but if the hammer should then drop, there being no pressure or resistance on the trigger, the plate L merely oscillates to its original position, with the pin 5 standing at the inner end of the slot, thereby keeping the sliding hammer-face at such position that there will be no contact with the firing-pin F even if the hammer accidentally becomes released from the thumb. When the hammer is cocked by pressing on the trigger D, as in self-cocking discharge, or when the trigger is pulled for releasing the sear from the cock-notch *e*, it is obvious that the lifter-pawl will oscillate the plate or lever L by its pin 6 and that said pin will engage the

top of the opening 16, so that when the hammer is released the pressure of the finger on the trigger and acting through the pin 6 prevents the return of the oscillating plate or lever L, while the hammer is thrown forward by the action of the mainspring M. Consequently the pin 5 is caused to slide in the inclined slot or groove 15, the pin passing to the front end of the slot, which is held raised, as shown in Fig. 2, and said inclined slot, acting as a cam or guide in conjunction with the pin 5, forces the sliding hammer-face upward during the forward movement of the hammer, so that when the hammer-face arrives at the firing-pin head it presents its solid portion, which contacts with the firing-pin, and effects the discharge of the cartridge. At all movements of the lock mechanism, except when the trigger is pulled and held at backward position, the parts move together and the sliding face remains depressed, thus presenting the recess or vacant space 3 to the head of the firing-pin when approaching the same. In other words, the safety-piece is always down or out of line with the firing-pin, excepting when the trigger is held back, and the hammer falls while the trigger is in that position, the slide then rising while the hammer drops.

From the foregoing it will be seen that a very simple inexpensive but highly-efficient safety device is produced and the safety sliding hammer-face is adapted to the operation of double-action or self-cocking firearms.

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

1. A safety mechanism for double-action firearm-locks, comprising a sliding face-piece carried upon the hammer-body and adapted to move into and from a position of contact with the firing-pin head, and an oscillating coupling member pivotally mounted upon the hammer-axis pin, and operatively connected with said movable face-piece and with the hammer-lifter pawl, and the trigger or means for operating said lifter-pawl, for action substantially as set forth.

2. In a double-action firearm-lock, the combination, with the firing-pin, the pivoted hammer, the trigger, and the lifter-pawl hinged to the rear part of the trigger; of a sliding hammer-face movably attached to the front of the hammer, and adapted to present a recess or space for non-engagement with the firing-pin head when at one position, and a solid face for contact with said firing-pin head when at its other position, an oscillating member pivoted upon the hammer-axis adjacent to the side of the hammer and provided with a cam-slot and an opening, a stud or pin carried on said sliding hammer-face and embraced in said cam-slot, and a stud or pin carried on the lifter-pawl and engaging within said opening, substantially as set forth.

3. In a double-action firearm-lock, in combination with the hammer, the firing-pin, the trigger and the lifter hinged to said trigger;

a sliding hammer-face carried upon the hammer and adapted to move into and out of position of contact with the firing-pin, an oscillating member fulcrumed on the hammer center pivot, means for sliding said hammer-face on the hammer-body controlled by said oscillating member, and means connecting said oscillating member with the lifter-pawl, comprising an opening and a pin engaging therein, said opening having capacity for permit-

ting a limited independent movement of the lifter to accommodate the variance in the respective movements, and the throw-off action of the lifter, substantially as set forth.

Witness my hand this 8th day of February, 1900.

HOMER M. CALDWELL.

Witnesses:

CHAS. H. BURLEIGH,

GEORGE F. BROOKS.