

Aug. 27, 1957

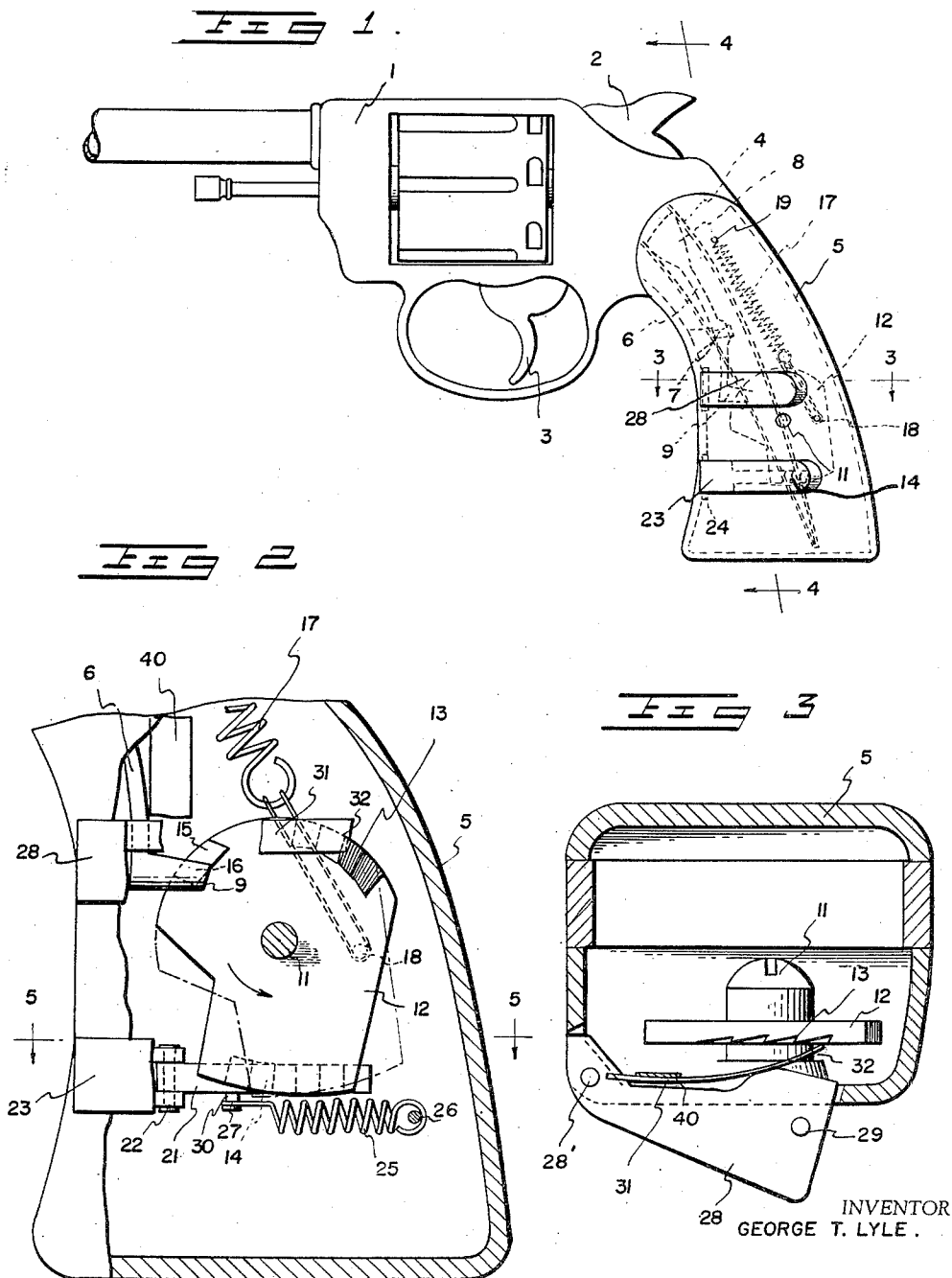
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COMBINATION SAFETY LOCK FOR FIREARMS

Filed May 20, 1954

3 Sheets-Sheet 1



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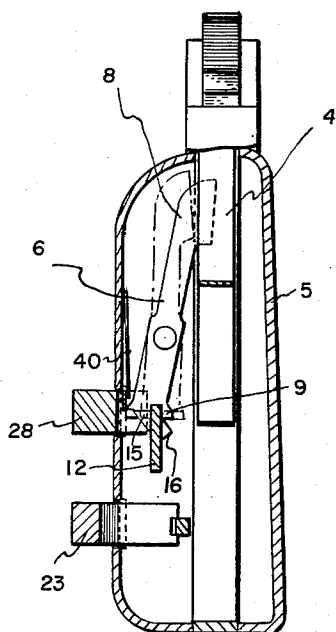


FIG. 4.

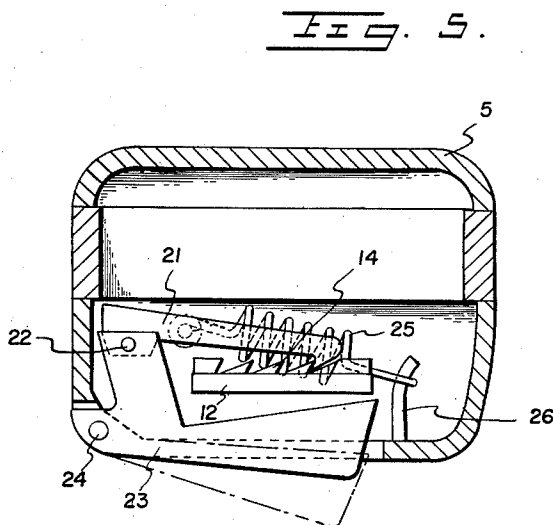


FIG. 5.

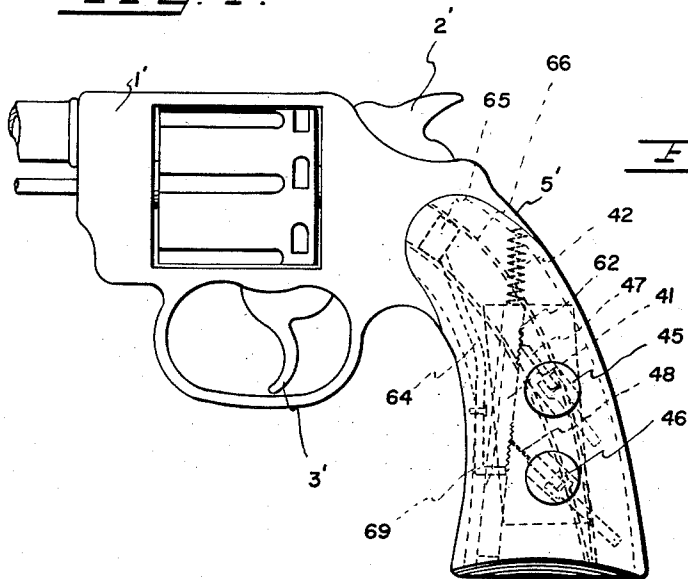


FIG. 6.

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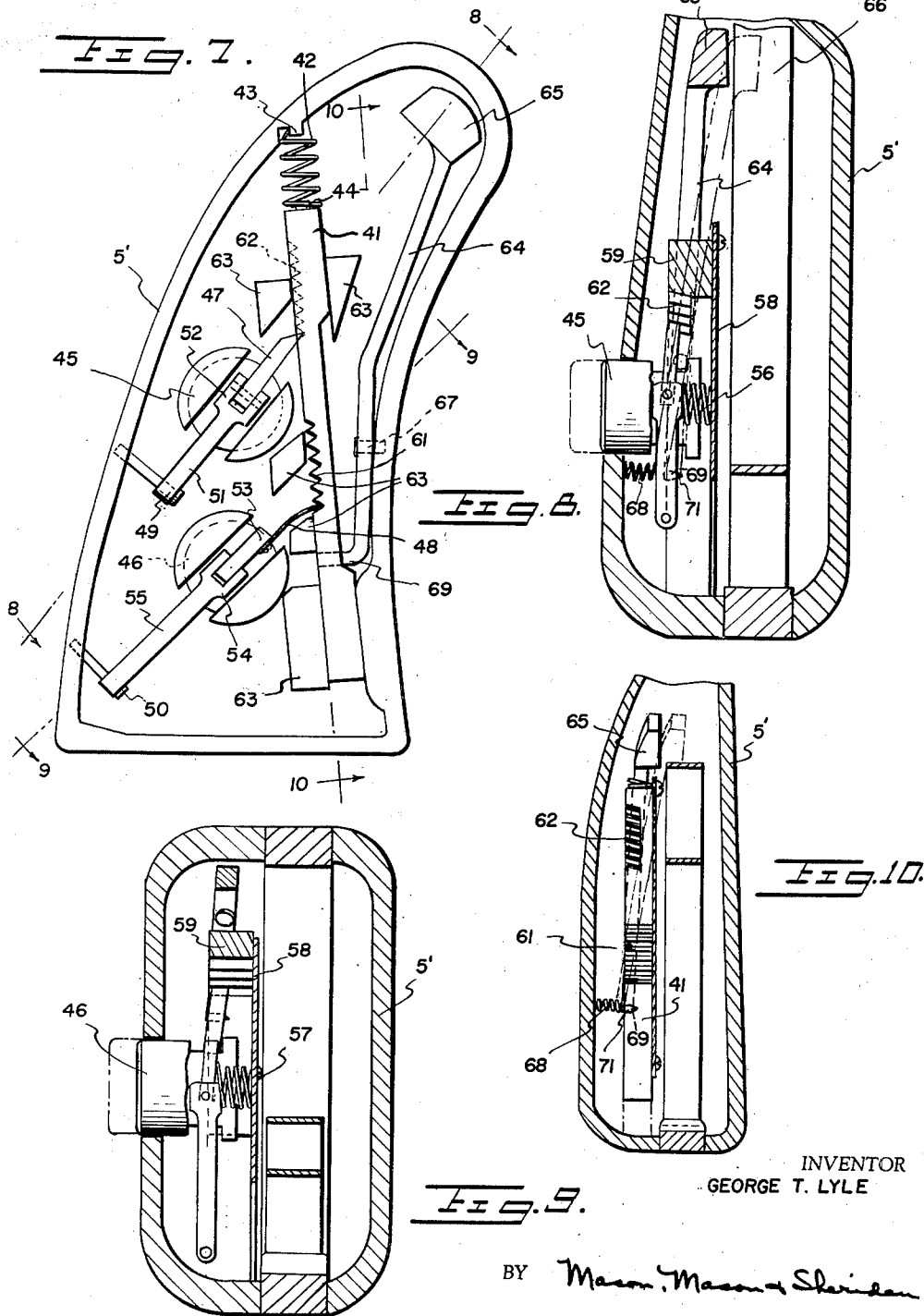
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2,803,910

COMBINATION SAFETY LOCK FOR FIREARMS

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Application May 20, 1954, Serial No. 431,147

9 Claims. (Cl. 42—70)

This invention relates to a combination safety lock or device for firearms in general and particularly to such a lock readily useable with small arms in the revolver class.

Prior devices of this general type usually consist of a lever-operated cam to prevent cocking or triggering the weapon but no combination lock to control the firing of the weapon is provided. Other types of safety devices for firearms are available, such as the safety means illustrated in U. S. Patent No. 2,182,693, but the large number of mechanical parts makes such devices impractical. By the present invention, the combination safety lock includes a release mechanism for permitting triggering of the weapon and this release mechanism may be operated only upon the user having knowledge of the lock combination. Furthermore, the lock combination, while being relatively simple and composed of a minimum number of parts, may be changed or altered at the will of the manufacturer to meet various requirements of the user, to prevent unwarranted or unauthorized use of the weapon, and to preclude accidental discharge thereof.

Accordingly, it is an important object of this invention to provide an improved safety lock and release mechanism for a firearm which has a combination lock arrangement.

Another object of this invention is to provide an improved combination safety lock and release means for a firearm which is incorporated in the handle or hand-grip of the revolver and which may be operated by proper sequence movement by, for example, the middle and ring fingers of the user.

A still further object of this invention is to provide an improved safety device for a firearm of the type described which is inexpensive to manufacture, is durable, and which is foolproof in operation to preclude accidental and unauthorized use thereof.

Other objects and advantages will be obvious from the following description taken with the accompanying drawings, in which

Figure 1 is an elevational side view of a revolver incorporating one form of the combination safety device of this invention;

Figure 2 is an elevational side view with the handle broken away;

Figure 3 is a sectional view taken along the line 3—3 of Figure 1 but only including certain of the parts;

Figure 4 is a sectional elevational view taken along the line 4—4 of Figure 1;

Figure 5 is a sectional view taken along the line 5—5 of Figure 2;

Figure 6 is an elevational side view of a revolver incorporating a second form of this invention;

Figure 7 is a side elevational view thereof with a portion of the handle and the cover plate removed;

Figure 8 is a sectional view taken along the line 8—8 of Figure 7;

Figure 9 is a sectional view taken along the line 9—9 of Figure 7; and

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Figure 10 is a sectional view taken along the line 10—10 of Figure 7.

It is to be understood that there are many occasions where a combination safety lock and release mechanism for firearms may be employed such as when the user desires preventing unwarranted, unauthorized, and accidental use of his weapon. In both forms of the invention, to prepare the firearm for firing or triggering, a lever or button must be maintained depressed by the user and to release the locking lever from the main spring of the weapon it is necessary to depress an additional button or lever a predetermined number of times and this constitutes the combination.

Referring to the embodiment illustrated in Figures 1—5, inclusive, the numeral 1 represents a conventional firearm in the form of a revolver having the usual hammer 2, trigger 3, main spring 4 and handle 5. In typical operation, partial actuation of the trigger may cock the hammer, thus causing the spring 4, connected to the hammer, to become bowed, and further movement thereof may trigger or fire the gun through release actuation or movement of spring 4 and thereby snapping or release pivoting of the hammer. By the present invention, spring 4 may not be actuated or released to unbowed condition until locking lever 6 is released from engagement with the main spring 4 or released from a position where it provides a stop preventing movement of spring 4.

The locking lever 6 is pivotally mounted within the casing or hand-grip 5 at 7 and includes a head or shoulder portion 8 for engagement with the main spring 4 and a U-shaped end portion 9 which will be further described hereinafter. Rotatably mounted at 11 within the handle or casing 5 is a ratchet wheel or member 12, said wheel having near one end thereof adjacent the periphery teeth 13 and at the other end thereof adjacent the periphery, but on the opposite face or side, teeth 14. Also positioned on the same face of wheel 12 as are the teeth 13 is a protruding lug or projection 15 and, as shown in Figures 2 and 4, one leg of the U 9 normally rests against this abutment 15, as illustrated in Figure 4, and the other side or leg adjacent an abutment or projection 16 projecting from the opposite face or surface of wheel 12, namely the face upon which teeth 14 appear. It will be apparent hereinafter that the other leg rests on projection 15 when the head 8 is pivoted to the dotted line position of Figure 4. As the parts are illustrated in Figures 1 and 2, the wheel 12 and the lever 6 are in their normal positions with the lever head 8 locked or depressed within spring 4. A spring 17 is connected within casing 5 to the wheel 12 at 18 and to the casing 5 at 19 and this spring functions to maintain the wheel 12 in its normal position.

For actuating rotation of wheel 12, there is provided a pawl 21 pivotally mounted by means 22 to a lever 23 extending exteriorly of casing 5, the lever 23 in turn being pivoted by any suitable means 24 to the casing 5 and being accessible and adapted for actuation on the outside of the casing 5 and preferably by the ring finger of the user. Spring 25 is mounted on the handle 5 at 26 and connected to the pawl at 27 by pin 30 for normally maintaining the pawl 21 and lever 23 in their normal positions. Also pivotally mounted on casing 5 by any suitable means 28' is a lever 28 which extends exteriorly of the casing 5 and is adapted for pivotal actuation by preferably the middle finger of the user. Lever 28 has an abutment 29 thereon engageable with the exterior surface of casing 5 for limiting the amount of pivotal movement thereof. Connected to the interior of the casing is a leaf spring 31 and this spring has one end 32 thereof adapted for engagement with teeth 13 of the wheel 12 upon suitable depression of lever 28, spring 31 and lever 28 being urged to their normal positions, upon releasing lever 28

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from depressed position, whereby end 32 is maintained out of engagement with teeth 13 by suitable means 40. Therefore, spring 31 functions as a retaining pawl for engagement with teeth 13 and to thereby, when lever 28 is depressed, hold the wheel 12 in the rotated position caused by actuation of pawl 21. In connection with driving pawl 21, which is normally biased into engagement with teeth 14, suitable means comparable to the type shown in U. S. patents to Smith 656,380, Christie et al. 1,253,150 and Pfantz 661,704 must be employed to release or disengage pawl 21 and the teeth 14 when the wheel 12 is being returned to its normal position by the spring 17.

In operation, the parts are as shown in Figures 1 and 2 with the head 8 depressed within spring 4 as illustrated in Figure 4. To prepare the gun for firing or triggering, lever 28 is depressed and maintained in this condition whereby end 32 engages a tooth 13 of wheel 12. Thereafter, lever 23 is depressed and each depression causes, due to engagement of pawl 21 with the teeth 14, a rotative movement of the wheel 12 in the direction of the arrow shown in Figure 2. The device illustrated has been arranged so that three depressions of lever 23 while maintaining lever 28 depressed will result in movement of wheel 12 a sufficient amount to cause the head 8 to be pivoted out of engagement with spring 4 as illustrated in Figure 4, and this pivoting actuation of the head is caused by a camming action due to disengagement and engagement of the U-shaped fingers of end portion 9 with the protuberances 15 and 16 during rotative movement of the wheel 12. When the parts are in this position, the trigger may be operated and the gun fired and repeated firing may take place as long as lever 28 is maintained depressed. To release plate 12, and to again lock the parts in non-firing position, it is merely necessary to release lever 28 and this permits spring 17 to function to return the wheel and the head 8 to its normal locked position.

A modified form of the invention is illustrated in Figures 6-10, inclusive. Within casing 5' is mounted for substantially vertical movement an elongated ratchet member 41, said member normally being maintained in the position illustrated in Figure 6 due to the action of spring 42 which is connected to the casing 5' at 43 and to the member 41 at 44. Exteriorly of the casing 5' are two buttons 45 and 46 which may be depressed to cause movement of pawls 47 and 48 in a manner hereinafter to be described. Each pawl 47 and 48, respectively, is connected through suitable pivoting linkage to the casing 5' as at 49 and 50, respectively. The linkage for pawl 47 comprises an arm 51 having a bifurcated portion 52 to which the pawl 47 is pivotally connected and pawl 48 is integrally and rigidly connected to member 53 which also pivots on a bifurcated portion 54 of arm 55. The bifurcated portions 52 and 54 may be moved inwardly by depressing of buttons 45 and 46, respectively, and their outward movement is maintained by compression springs 56 and 57 which are connected with a cover plate 58 rigidly mounted in the casing on suitable projections such as at 59.

Pawl 48 is adapted for engagement with teeth 61 of ratchet member 41 and pawl 47 is adapted for engagement with teeth 62 of member 41. While member 41 may be moved vertically within the casing upon actuation of the pawls 48 and 47, sidewise movement thereof is prevented due to lugs 63 and configuration of casing 5' which, in effect, provide a passageway or guideway for the substantially vertical movement of member 41. The locking lever 64 is provided with a head 65 for engagement with the main spring 66 of the revolver, the locking lever 64 being pivoted to the casing at 67 and maintained in its locking position due to spring 68 which normally forces the L-shaped bottom 69 of member 64 toward member 41 and in abutting engagement therewith. It is to be noted that member 41 is

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provided with a groove 71 which may receive the angle portion 69 of lever 64 upon a predetermined vertical movement of member 41 and, when this occurs, the spring 68 forces the wedge end of part 69 into the groove 71 to pivot lever 64 and thus the head 65 maintains the solid line position shown in Figure 8.

In operation, the parts are as illustrated in Figure 6, and with the head 65, due to part 69 being out of engagement with the groove 71, in depressed condition with relation to spring 66. To permit firing of the gun, button 46 is maintained depressed and the pawl 48 engages a tooth 61 and, in effect, is the retaining pawl. Thereafter, the button 45 is depressed a number of times to operate the driving pawl 47 to elevate member 41 against the action of spring 42. As the device illustrated is constructed, three depressions of button 45 will result in elevation of member 41 to a position whereby part 69 is forced by spring 68 into the groove 71 and this results in the head 65 being positioned as shown in Figure 8 and permits firing of the gun. The head 65 again engages the spring 66 and locks against triggering upon release of buttons 45 and 46.

It should be readily apparent and appreciated from the description of the parts and operation of both embodiments that a safety lock and release mechanism is provided which fulfills the objects of the invention hereinafore enumerated.

The above description and drawings disclose several embodiments of the invention, as specific language has been employed in describing the several figures. It will, nevertheless, be understood that no limitations of the scope of the invention are thereby contemplated, and that various alterations and modifications may be made such as would occur to one skilled in the art to which the invention relates.

I claim:

1. A combination safety lock for firearms having a main spring associated with the hammer of a firearm comprising a lever pivotally mounted for locking in its normal position the main spring, a movable member having means thereon for causing pivoting of said lever, means for moving said member and holding the member in its moved position, means for actuating said last named means whereby the lever becomes disengaged from the main spring and return means operable upon release of said holding means for moving said member and releasing the lever to their normal positions.

2. A combination safety lock for firearms having a main spring associated with the hammer of a firearm comprising a lever pivotally mounted for locking in its normal position the main spring, a movable member having means thereon for causing pivoting of said lever, means for moving said member and holding the member in its moved position, means for actuating said last named means whereby the lever becomes disengaged from the main spring and return means operable upon release of said holding means for moving said member and releasing the lever to their normal positions, said moving means and said movable member having cooperating parts requiring a predetermined number of engagements for causing pivoting of said lever.

3. A combination safety lock for firearms having a main spring associated with the hammer of the firearm comprising a lever pivotally mounted for locking in its normal position the main spring, a movable member having means thereon for causing pivoting of said lever, a pawl for moving said member, a retaining pawl for holding said member in its moved position, means for actuating said pawl and retaining pawl whereby the lever becomes disengaged from the main spring, and return spring means operable upon release of said retaining pawl for moving said member and releasing the lever to their normal positions.

4. A combination safety lock for firearms having a main spring associated with the hammer of the firearm

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comprising a lever pivotally mounted for locking in its normal position the main spring, a movable member having means thereon for causing pivoting of said lever, a pawl for moving said member, a retaining pawl for holding said member in its moved position, means for actuating said pawl and retaining pawl whereby the lever becomes disengaged from the main spring, and return spring means operable upon release of said retaining pawl for moving said member and releasing the lever to their normal positions, said movable member and said moving pawl having cooperating parts requiring a predetermined number of engagements for causing pivoting of said lever.

5. A combination safety lock for firearms having a main spring associated with the hammer of the firearm, comprising a lever pivotally mounted for locking in its normal position the main spring, a rotatably mounted ratchet wheel having means thereon for pivoting said lever upon rotation thereof, a pawl for rotating said wheel, a retaining pawl for holding the wheel in its rotated position, means for actuating said pawl and said retaining pawl whereby the lever becomes disengaged from the main spring, and return spring means operable upon release of said retaining pawl for rotating said wheel and releasing the lever to their normal positions.

6. Apparatus as defined in claim 5, wherein the means for pivoting said lever includes spaced projections on said wheel for causing a camming action on a portion of said lever.

7. Apparatus as defined in claim 5, wherein said pawls

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are adapted for engagement with teeth on said wheel and normally maintained in disengaging relationship with said teeth by biased means.

8. A combination safety lock for firearms having a main spring associated with the hammer of the firearm comprising a lever pivotally mounted for locking in its normal position the main spring, a ratchet member mounted for sliding movement and having means thereon for causing pivoting of said lever upon a predetermined movement thereof, a pawl for moving said member, a retaining pawl for holding said member in its moved position, means for actuating said pawls whereby the lever becomes disengaged from the main spring, and return spring means operable upon release of said retaining pawl or a predetermined movement of said pawl for moving said member and releasing the lever to their normal positions.

9. Apparatus as defined in claim 8, wherein said means for causing pivoting movement of said lever includes a groove in said member adapted to receive a spring biased portion of said lever.

References Cited in the file of this patent

UNITED STATES PATENTS

351,262	Goltstein	Oct. 19, 1886
430,397	McClintock	June 17, 1890
1,972,763	Dutton	Sept. 4, 1934