C. A. NELSON.

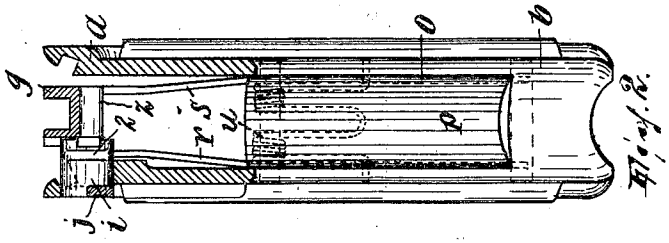
FIREARM.

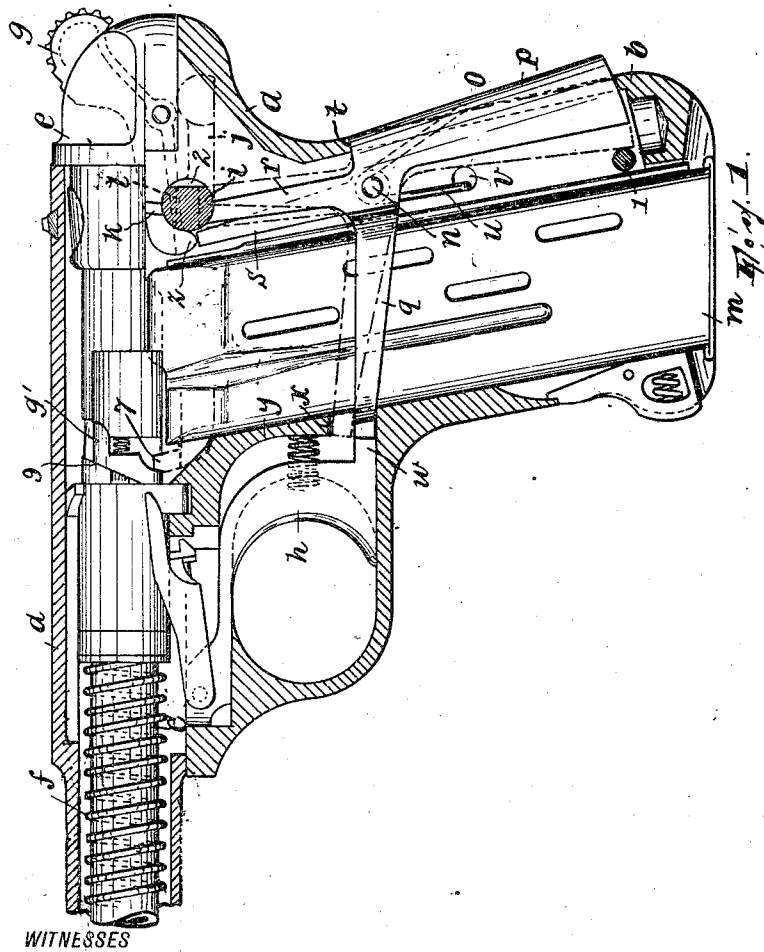
APPLICATION FILED OCT. 15, 1912.

1,085,698.

Patented Feb. 3, 1914

2 SHEETS—SHEET 1.





WITNESSES

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2 SHEETS—SHEET 2

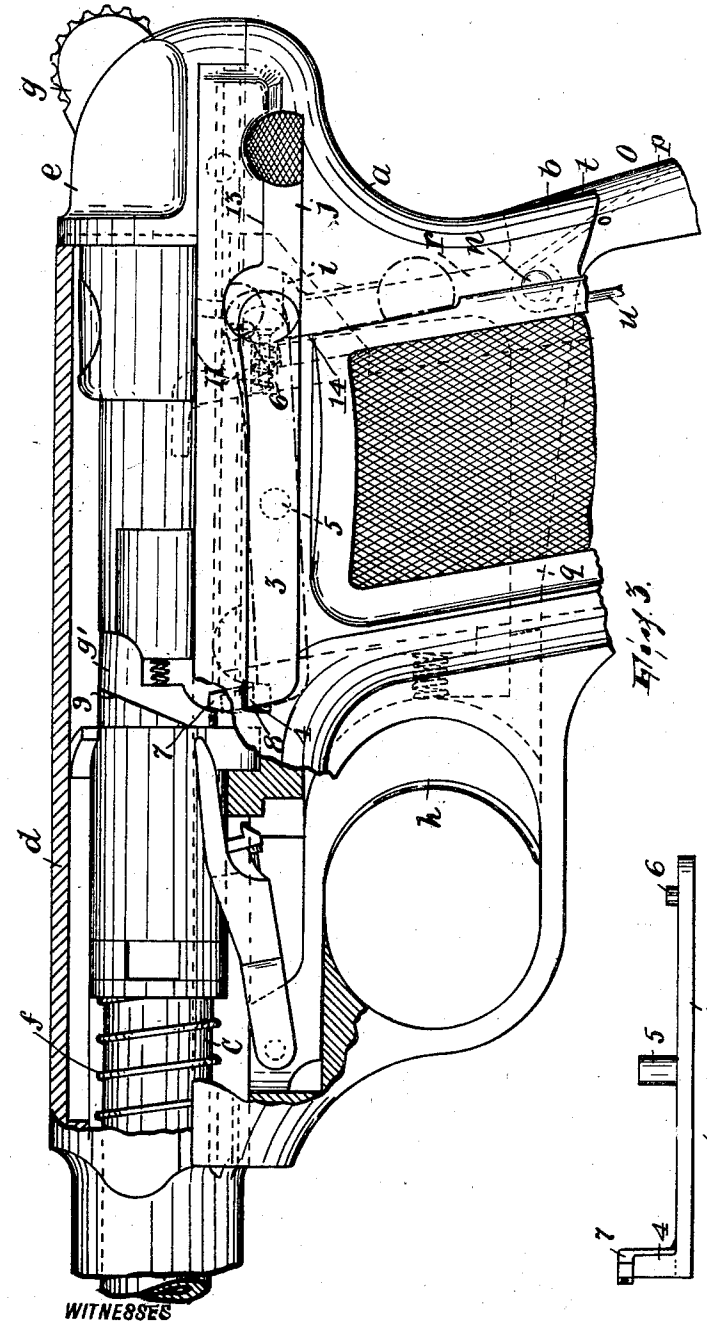

Fig. 3.

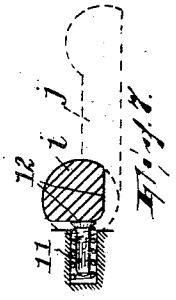

Fig. 2.

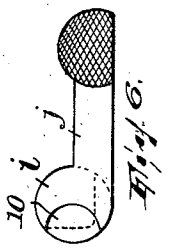

Fig. 6.

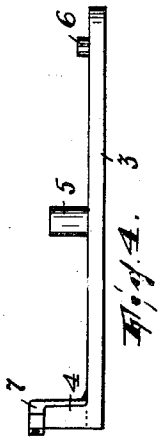

Fig. 4.

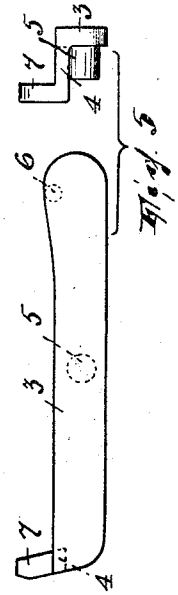

Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES A. NELSON, OF UTICA, NEW YORK, ASSIGNOR TO SAVAGE ARMS COMPANY, OF UTICA, NEW YORK, A CORPORATION OF NEW YORK.

FIREARM.

1,085,698. Specification of Letters Patent. Patented Feb. 3, 1914.

Application filed October 15, 1912. Serial No. 725,950.

To all whom it may concern:

Be it known that I, CHARLES A. NELSON, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

This invention has for its object to provide a simple and reliable safety locking means for firearms, this object having been carried out in the specific form of the invention herein shown and described with reference to the firing mechanism, the sear therefor and the sear-tripping or releasing mechanism of an arm of the kind illustrated, for instance, in the patent to Searle, No. 936,369, wherein is employed a device for locking the breech-bolt and the firing mechanism, which device I utilize as a detent in obstructing the firing movement of the firing mechanism, the releasing movement of the sear and the sear-actuating movement of the sear-tripping mechanism.

In the accompanying drawings, Figure 1 is a view of the improved arm mainly in longitudinal vertical section; Fig. 2 is a rear elevation, partly in vertical section through the axis of the detent, all parts of the breech mechanism being removed excepting the cocking-lever; Fig. 3 is a view of the improved arm in side elevation, partly broken away and on a larger scale, illustrating mainly the sear locking device; Figs. 4 and 5 are detail views of said sear locking device; Fig. 6 is a side elevation of said detent; and, Fig. 7 is a sectional view of said detent and its means for holding it at either of its limits of movement.

The frame *a* having the grip *b;* the barrel *c;* the breech-bolt *d* having the removable plug *e* forming therewith a breech-structure which slides on the frame back and forth under the counter influences of the explosion-pressure and the spring *f;* the firing mechanism arranged in the plug *e* and including the cocking-lever *g* and sear *g'*; the firing-mechanism-releasing means including the trigger *h* arranged to slide backward and forward in the frame; the locking device or detent consisting of a spindle *i* journaled in the frame and having a handle *j* and being adapted when turned to the dotted line position in Fig. 3 both to leave the breech mechanism free to move longitudinally and the cocking-lever free to move against the firing-pin (because at that time a lug *k* on the cocking-lever coincides with a cross-cut slot *l* in the spindle *i*) and being further adapted, when turned into the full-line position in Fig. 3, to be received by the one or the other of notches (not shown) in the breech-bolt to lock the breech-mechanism against longitudinal movement and to oppose firing movement of the cocking-lever (because its slot *l* is not in registry with lug *k*, which then impinges against the spindle); and the cartridge magazine *m* entered into the grip from the bottom, are or may be all substantially the same as in the said Searle patent, excepting as hereinafter indicated.

On a pin *n* fixed in the upper back part of the grip is fulcrumed a lever forming the improved locking device for the searing-tripping and firing mechanisms. This lever *o* is suitably shaped from a piece of sheet metal and includes the part-cylindrical or channeled elongated body part *p* having arms projecting from its upper end and formed as follows: From the wall or side of said body part toward the observer in Fig. 1 project two arms *q* and *r;* from the other wall or side projects the arm *s*. The fulcrum-portion of the lever is located at about the point from where the arms project, suitable holes being provided in its opposite walls to receive the pin *n*. In the normal or locking position of the lever its body-part *p* (whose convex side faces outwardly) is exposed and takes against the upper end of an opening *t* formed in the back of the grip, being held in that position by the spring *u* coiled about pin *n* and having one end bearing against the inside of said body part and its other end engaged in an opening *v* in the grip. In this position the arm *q* (which is bent around the magazine) has its free end bearing against a lug *w* projecting rearwardly from the trigger, an opening *x* being formed in the wall *y* of the frame between the trigger and magazine space to admit the arm and being of such height as to allow said arm to rise to the dotted line position in Fig. 1 to clear the lug; in the said position, also, arm *s* of the lever underlies the heel *z* at the forward end of the cocking-lever. Movement of the lever against the tension of spring *u* is limited by the stop 1, and when the lever abuts this stop

the arms *q* and *s* stand unopposed to the trigger and cocking lever.

The spindle *i* of the detent has a saw-cut or notch 2 disposed in the same vertical plane as that of the plane of movement of the arm *r*. The relation of the parts *o* and *i* is such that in the positions thereof shown in Fig. 1 (the detent then being in the "safe" position, locking the cocking-lever and breech structure) the end of arm *r* abuts the spindle so that the lever *o* cannot be moved to release the trigger and cocking-lever, this effect being enhanced by forming the end of the arm concave to fit the cylindrical surface of the spindle and adapting it to have contact with the spindle somewhat forward of a line connecting the axes of the spindle and lever *o*. In the dotted-line position of the detent (*i. e.*, the position where it releases the cocking-lever and breech-structure) the saw-cut 2 receives the end of arm *r*, so that lever *o* is now free to be moved to the position (dotted lines, Fig. 1) where it no longer opposes movement of the trigger and cocking-lever.

The control of the sear is effected from the detent through a lever 3. This lever is in the form of a strip having, projecting inwardly therefrom, the lug 4 at one end thereof, the fulcrum pin 5 between its ends and the stud 6 at its other end, said lug having an upstanding toe 7. The pin 5 is fitted into a suitable hole in the side of the frame and may be upset at its free end or otherwise provided with means for retaining the lever flatwise against the outer face of the frame. Adjacent the forward end of the lever an opening 8 is formed in the frame for the reception of the lug 4, such opening being of sufficient vertical extent to allow the toe 7 on shifting of the lever to move from obstructing relation to the depending part of the sear (which is fulcrumed at about the point 9 and is shown in the acting position) downwardly, clear of the same. The rear end of the lever overlies the end of spindle *i*, its stud 6 being received by a notch 10 formed eccentrically therein substantially opposite the handle *j* so that when the detent is turned the lever will be shifted on its fulcrum. The detent is influenced in the usual way by a spring-pressed plug 11 (Fig. 7) acting against an angular face 12 of the spindle and serving to urge the handle of the detent toward and hold it against either of the stops 13—14 on the frame toward which it is moved. The effective width of the notch 10 is sufficiently greater than the width of the stud 6 and less than the extent of movement of the detent determined by said stops so that the first part of the movement of the detent in either direction is, with respect to the lever 3, lost-motion; in the last part of such movement the detent, urged by the spring-pressed plug 11, brings one side of its notch 10 against the stud, the detent thus shifting the lever on its fulcrum as it moves into contact with one of the stops 13—14. When the detent is against the stop 13 (locking the cocking-lever and breech-structure in "safe" position) it holds the lever 3 in the position where its toe 7 obstructs movement of the sear; when the detent is against stop 14 it holds lever 3 with its toe 7 clear of the sear.

From the foregoing, it will thus be apparent that with the detent in the position shown by full lines in Fig. 3 it holds the levers 3 and *o* in the positions for locking the sear on the one hand and the trigger and cocking-lever on the other against movement; and that when in the position shown by dotted lines in said figure it holds lever 3 clear of the sear and leaves lever *o* unobstructed. It will be further observed that even with the detent in the latter position a very large measure of safety against unintentional discharge exists in that movement of neither the trigger nor the cocking-lever can take place until lever *o* has been moved out of obstructing relation thereto—a condition to which, however, the construction and arrangement of the parts readily lend themselves for the quick and effective discharge of the gun by gripping and operating it in the usual way.

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

1. In combination, the gun frame, a mechanism to be controlled arranged therein, an actuating member having limited movement in opposite directions in the frame and also having elastic means to urge it toward each of its limits of movement, and a locking device controlling said mechanism and coupled and movable with said member in each direction, substantially as described.

2. In combination, the gun frame, a mechanism to be locked arranged therein, a fulcrumed actuating member having limited pivotal movement in the frame and also having elastic means to urge it toward and hold it at each of its limits of movement, and a locking lever coupled and movable with said member in each direction and into and out of locking relation to said mechanism, substantially as described.

3. In combination, the gun frame, a mechanism to be locked arranged therein, a fulcrumed actuating member having limited pivotal movement in the frame and also having elastic means to urge it toward and hold it at each of its limits of movement, and a locking lever coupled and movable with said member in each direction and into and out of locking relation to said mechanism, said lever and mechanism having a lost-motion connection with each other, substantially as described.

4. In combination, the gun frame, mechanism to be locked arranged therein, a locking lever fulcrumed in the frame and normally locking said mechanism, said frame having a stop opposing movement of said lever in one direction out of the locking position, and means, pivotally movable into and out of movement opposing relation to said lever, for holding the same against movement in the other direction when in the locking position, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES A. NELSON.

Witnesses:
Jos. G. Sliker,
Jos. A. Davis.