Oct. 27, 1936. K. WESTINGER 2,058,746

QUICK-FIRING PISTOL

Filed Feb. 16, 1933 4 Sheets-Sheet 1

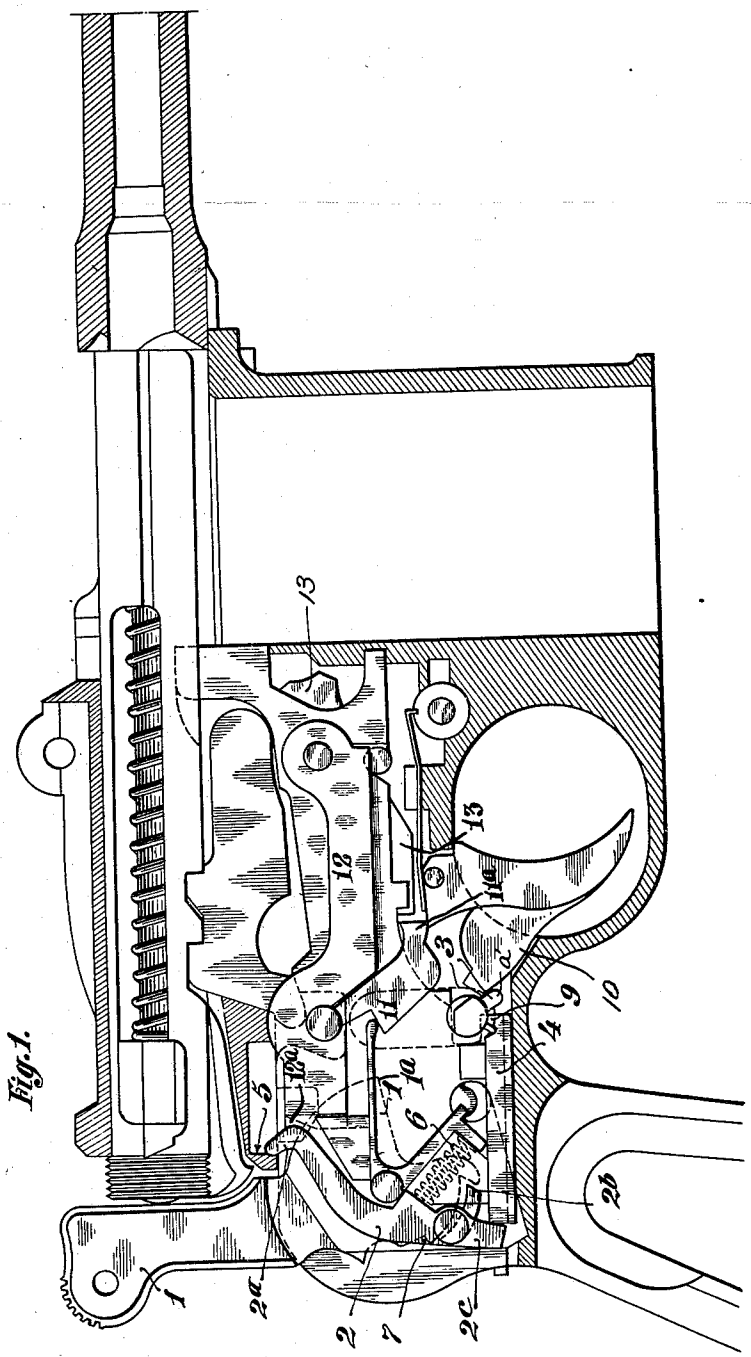

Fig. 1.

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QUICK-FIRING PISTOL

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Fig. 3.

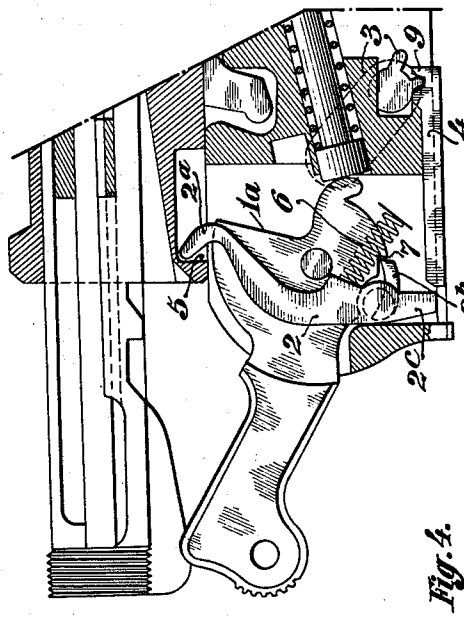


Fig. 4.

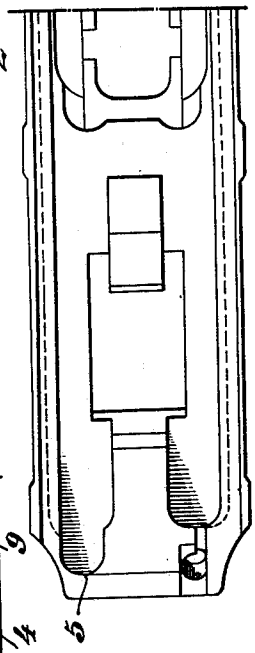
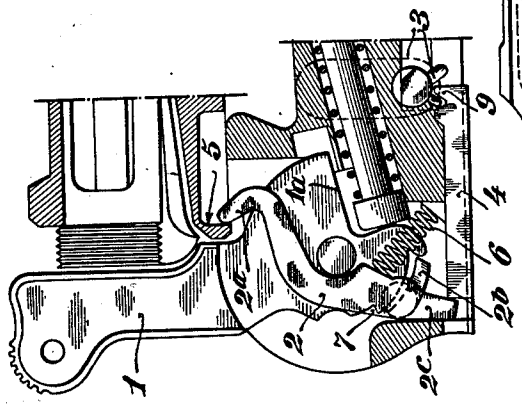


Fig. 2.



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QUICK-FIRING PISTOL

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Fig. 7.

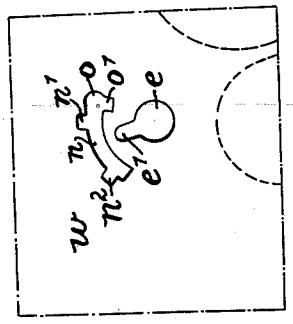

Fig. 5.

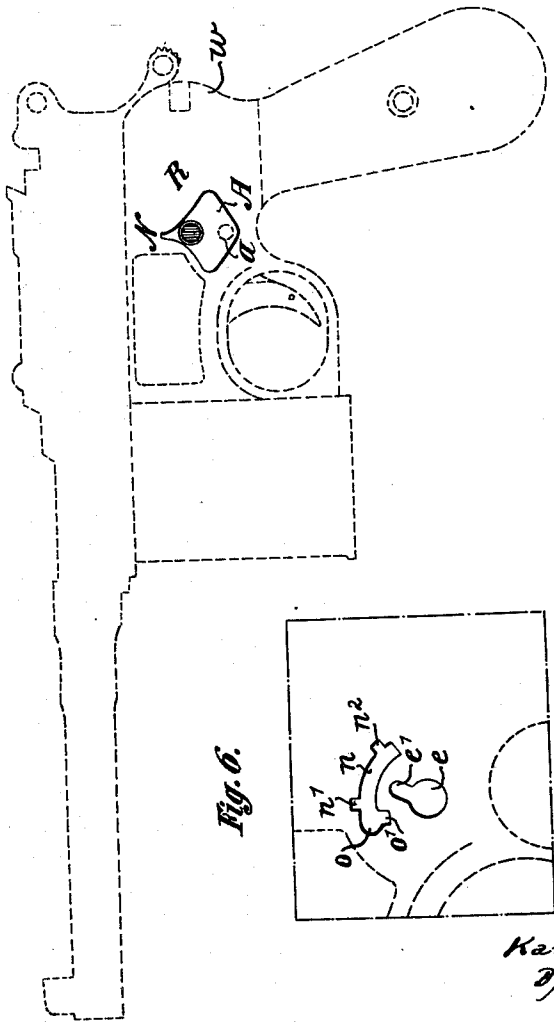

Fig. 6.

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Fig.8.

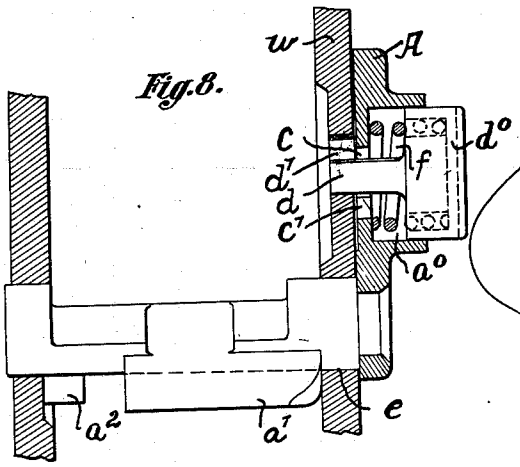


Fig.9.

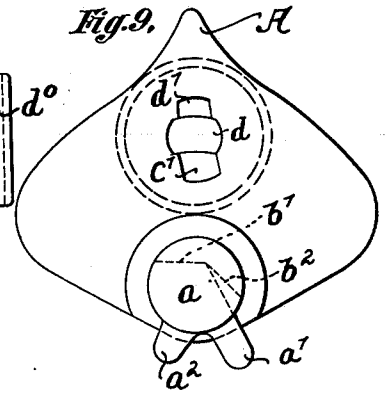


Fig.10.

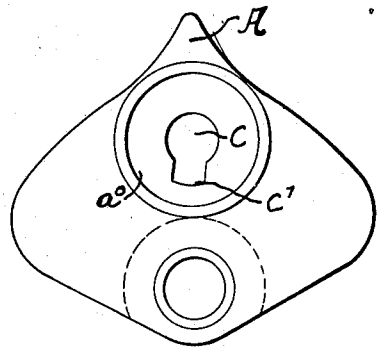


Fig.11.

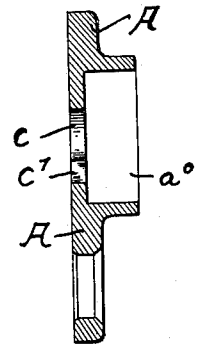


Fig.12.

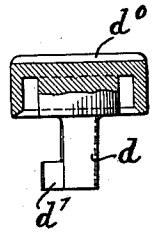


Fig.13.

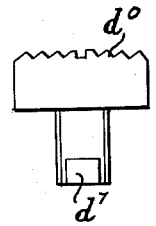
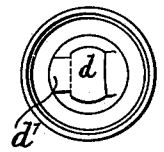


Fig.14.



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Patented Oct. 27, 1936 2,058,746

UNITED STATES PATENT OFFICE

2,058,746

QUICK-FIRING PISTOL

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Application February 16, 1933, Serial No. 657,136
In Germany April 13, 1932

6 Claims. (Cl. 42—69)

My invention relates generally to automatic breech-loading firearms and more particularly to a quick-firing pistol provided with a hammer and means for adjusting the pistol mechanism for selectively firing single shots or series of shots.

This setting means comprises a setting lever outside the pistol frame or body and integrally connected with the grip or handle, and adapted to be displaced or set for the purpose of rendering the "safety", (known per *se*) for the prevention of double or repeated firing, inoperative, by moving a hammer locking lever from the path of the hammer.

When the pistol mechanism is set for repeat fire the hammer is prevented from striking upon the firing pin until the breech is locked, by providing a catching lever independent of the usual hammer locking lever, said catching lever having one arm positively engaging a notch in the cocked hammer, when or while the breech is opened, so as to lock the hammer, while another arm of the lever projects into the path of the barrel or breech bolt so that when the latter is moved forward into its extreme forward or closed position, the same will act to disengage the catching lever from the notch in the hammer and the parts will be in position for firing.

The chief object of the present invention is to provide improved means for locking the hammer and securing the same in locked position until the breech bolt is locked in its extreme forward position, also to provide means for locking the aforesaid setting means in the selected positions.

According to the present invention, the setting means of my improved pistol is adapted to operate the catching lever by means of an intermediate member which in case of firing single shots, will lock said lever in a position in which it will not retain the hammer in cocked position. To this end the catching lever comprises an elongated or upper arm adapted to project into the path of the recoiling breech-bolt, a short arm or nose projecting laterally in forward direction and adapted to cooperate with a notch or dwell of the hammer, and a depending short arm adapted to be engaged by an intermediate member or not, according to whether the setting means has been set for single or repeat firing, so that in the former case the catching lever will occupy a position with its lateral short arm out of the path of the notch or dwell of the hammer and in the case of repeat firing the same will be located in the path of the said notch or dwell of the hammer.

It will thus be seen that in case of discharging single cartridges the hammer will not be locked by the catching lever since the latter does not engage in the notch or dwell of the hammer. Consequently the proper or normal function of the firearm will not be disturbed in any way by the mechanism for firing series of shots or, in other words, when the firearm has been set for firing single shots the same will operate like any known normal or single shot pistol. Furthermore, the inoperativeness of the catching lever, when the pistol has been set for firing single shots, involves the advantage of preventing the said lever from being injuriously affected by wear, to a far higher degree than in pistols of this type as hitherto constructed, wherein the mechanism for firing series of shots uselessly operates incidentally also in case of discharging single cartridges, which is the more appreciable as injuries due to friction and breaking of the catching lever (very liable to occur in the firearms of the old type) are entirely avoided in a pistol constructed according to the present invention.

The catching or intercepting lever is pivotally mounted in the frame integrally connected with the grip or handle so as to be susceptible of displacement in a plane parallel to the axis of the barrel of the pistol. As a result, a positive and reliable engagement and cooperation of the locking means will be ensured thereby and the hammer will be prevented from lagging in case of firing shots in succession. Lateral clearance or play of the hammer in the frame or breech casing is no consideration anymore in such a kind of cooperation of the locking means. The catching lever can be released by the barrel extension or breech-bolt in the last stage of the forward movement thereof and the breech will be closed and locked, therefore, in a more reliable manner. Furthermore, the length of the lateral catching arm of the intercepting lever and that of the elongated upper arm thereof are proportioned to have a ratio of about 1 to 5, consequently a minimum expenditure of power only is required for releasing the lever adapted to turn about its pivot readily, and the operation of the pistol, particularly as regards the closing and locking of the breech, will be the more efficient and reliable owing to such minimum expenditure of the available energy.

The herein mentioned intermediate member is preferably shaped to form a sliding bar, where-

of the forward end is positively connected to the setting lever.

The hereinbefore stated and other objects of my invention will more fully appear from the following description. Having in view the stated and other objects, which will more fully appear from the following description or will be obvious therefrom, my invention consists in the novel devices, combinations of devices, and improvements herein set forth.

The accompanying drawings which are referred to herein and form a part of this specification, show by way of example two embodiments of my invention as applied to an automatic breech loading pistol. Referring to the drawings Figures 1 to 4 illustrate the one embodiment, while Figures 5 to 14 disclose the modification or other embodiment of my invention.

Figure 1 is a longitudinal central section of the pistol with the breech closed and the hammer in contact with the firing pin;

Figure 2 is a similar view of the closed breech of the pistol with the parts set for firing single shots;

Figure 3 is a similar view of the opened breech of the pistol with the part set for series firing or firing several shots in succession;

Figure 4 is a bottom view of parts shown in Figure 1;

Figure 5 is a left-hand side elevation of the pistol illustrated on a somewhat reduced scale and diagrammatically in dotted lines, but with the setting lever shown in full lines;

Figures 6 and 7 illustrate a guiding slot in the wall of the frame integrally connected with the grip or handle, viewed from the outside and inside, respectively;

Figure 8 is a fragmentary view in cross-section of the said frame on an enlarged scale with the setting lever and concomitant parts mounted therein;

Figure 9 is a rear view of the setting lever shown in Figure 8, with its cooperating parts and detached from the frame;

Figures 10 and 11 are a view in front elevation and a view in vertical cross-section of the said setting lever, respectively; and the

Figures 12, 13 and 14 are a view in side elevation, partly in section, a view in rear elevation and a plan view, respectively, of the locking member of the said lever.

The drawings show the invention applied to a pistol of the kind described in U. S. Patent No. 1,980,874. As in that pistol, the hammer 1 has a flat surface 1*a* cooperating with a projection 12*a* on the hammer locking lever 12, the projection 12*a* locking the hammer in retracted position when the pistol is set for single firing and being inoperative for this purpose when the pistol is set for repeat firing, as will be hereinafter described. The projection 12*a* is movable from operative to inoperative position by means of mechanism consisting of a trigger pawl 11 pivoted to the hammer locking lever 12 and having at its lower end a nose 11*a* lying in the path of a projection 13 on the coupling bolt (the member B in the United States patent) of the pistol, which projection recoils along with the breech bolt, and a spring pressed locking pawl 10 mounted on the trigger, said pawl having a heel engaging a lug *a'* movable by the hereinafter described setting lever 3. In single firing, the locking pawl 10 lies in the position shown in Fig. 1, clear of the trigger pawl 11, and the projection 12*a* is then operative to engage the flat face 1a of the hammer. In repeat firing the locking pawl 10 is swung clockwise (Fig. 1) below the trigger pawl 11 by the lug *a'*, whereby pulling the trigger causes the hammer locking lever 12 to be raised to bring its projection out of the path of the hammer face 1*a*. In single firing the trigger has to be released after each single shot to condition the mechanism for the next shot, since the nose 11*a* of the trigger pawl 11 is carried beyond the top left hand corner of the trigger (Fig. 1) by the projection 13 and falls behind the trigger, whereby the latter is unable to raise the lever 12. By releasing the trigger the nose 11*a* is caused to come into the position shown in Fig. 1, permitting the next shot to be fired.

Referring to Figures 1 to 4, according to the invention catching lever 2 is provided adapted to prevent the cartridge from being discharged until the breech is closed and locked, by locking the hammer 1, said lever, comprises a three-armed member 2*a*, 2*b*, 2*c* pivotally mounted in the frame so as to be movable in a plane parallel to the axis of the barrel of the pistol, the upper or main arm 2*a* projecting into a cavity 5 in the barrel extension or breech-bolt and being held against the rear of said cavity by the action of a spring 6, the lateral arm 2*b* being adapted to cooperate like a pawl with the notch or dwell 7 of the hammer 1, and the lower or depending arm 2*c* projecting into the path of an intermediate sliding member or bar 4 positively coupled with the outer or setting lever 3 by means of its dog or lug 9 cooperating with a cam on the shaft of the lever 3. The ratio of the leverage of the arms 2*b* and 2*a* of the lever 2 is 1 to 5, as already mentioned. The construction and arrangement of the lever 3 is similar to that shown in Figures 8 to 14 and will be apparent from the description given hereinbelow with reference to Figures 8 to 14.

The operation of the described lever arrangement is as follows:—

The arm 2*b* of the catching lever engages, when the hammer is in full-cocked position and the lever 3 is set for repeat fire, as shown in Figure 3, in the notch 7 of the latter and acts to lock the same until the barrel in its flight towards its closing position, has caused, just prior to the termination of its movement for locking the breech, the lever 2 to turn about its pivot sufficiently to disengage the lever arm 2*b* from the notch 7 of the hammer, so that the latter can fly forward and strike upon the firing pin of the properly locked breech.

The movement of the catching lever 2 in the direction of the bore of the barrel or of the path of the barrel is, as regards its length, equal to 5,5 mm. in a pistol as shown, and involves a strong, efficacious cooperation and a ready release or disengagement of the catching elements 2*b* and 7, due to the advantageous leverage of the arms 2*a* and 2*b*. In fact, the friction between the catching lever 2 and the breech-bolt is reduced to a minimum. Moreover, a catching lever as shown and described, may be manufactured with large tolerances or allowances, whereby the cost of manufacture, especially the assemblage of the parts, will be considerably reduced. During repeat fire, as already described, the hammer lever 12 is held in its inoperative position with its projection 12*a* out of the path of the flat 1*a* of the hammer.

In case of firing single shots the catching lever 2 will be fully disconnected and locked by the

intermediate sliding bar 4 and the setting lever 3. When the setting lever 3 is set for single firing, as shown in Figure 2, the said sliding bar 4 will be shifted rearwards by the lever 3 so as to turn the lever 2 into inoperative position and lock the same in this position.

It will thus be seen that upon firing a single shot with the lever 2 in the inoperative position the barrel will fly back into its unlocked or rearward position but the catching lever 2 being in locked position cannot follow, so that the lever arm 2b cannot engage the notch 7 of the hammer 1, and the pistol functions without any loss or wear due to friction which otherwise would occur, if the catching lever could move together with the movement of the barrel.

When the setting lever 3 is set for firing several shots in succession, as shown in Figure 3, the same will hold and lock the sliding bar 4 in withdrawn position out of engagement with the catching lever 2 which thus is free to follow the recoiling barrel, upon firing, under the pressure of its spring 6, thereby engaging the full-cocked hammer by the agency of the cooperating parts 2b and 7 and locking the same until, upon the loading of the pistol, the barrel will fly forward into its closed and locked position and act at the same time to turn the catching lever 2 into its initial position. The arm 2b of the catch lever being held away from the notch 7 of the hammer the latter will be controlled only by the breech operated lever 12, 12a and will be released to fly forward and strike upon the firing pin to effect the discharge of the cartridge in the chamber of the barrel which in the meantime had been closed and locked in its closed position.

Figures 5 to 13 illustrate modified means for setting the pistol either for firing single shots or for firing several shots in succession and which may be substituted for the equivalent means shown in Figures 1 to 4. In this modification the setting lever A, see Figures 5, 8 and 9, which is an equivalent of the lever 3 shown in Figures 1 to 4, is mounted on or integrally connected with a shaft a provided with two cams a^1 and a^2 and supported in suitable bores or bearings e of the frame w. On turning the lever A for the purpose of setting the pistol for firing single shots or for firing shots in succession, either the one or the other one of the two slanting faces b^1 and b^2 of the shaft will cooperate and contact with the breech casing (not shown) enclosed in the frame w, in order to limit the turning movement of the lever A.

According to the present invention, a push-button is provided in the setting lever A with its head d^0 snugly fitting in a circular recess a^0 of the lever so as to be guided therein, while the free end of the stem d shaped to form a laterally projecting nose d^1, engages in a slot or aperture n of segmental shape formed in the wall of the frame w and located concentric with the bore e of the wall. In the operation of manually turning the lever A for setting purposes the said segmental slot n serves as a means for guiding the stem d. The slot n has two upper notches n^1 and n^2 for the nose d^1 to catch therein. On account of the circular or segmental form of the slot n the stem d is bevelled at two opposite sides to conform to the curvature of the arc of the circle, while the diameter of the stem d is dimensioned to exactly conform to the width of the slot n so as to snugly fit therein. The front end of the slot n is somewhat enlarged to form what may be said to be a circular recess or bore o, while in communication therewith a third notch o^1 is provided in the lower edge of the slot n for the nose d^1, the said bore o affording, in connection with its notch o^1 a means for inserting or withdrawing the push-button together with the setting lever, if required, or desired, only if or when the push-button occupies a position in the slot n with its nose d^1 projecting in downward direction.

I prefer to shape the setting lever, to form a shield or escutcheon of a width sufficient to cover, with its lateral wings, the slot n and the notches thereof in either position and to limit at the same time the catching movement of the push-button or afford a stop or abutment for the nose d^1 of the button stem d to contact therewith, in order to prevent the push button from flying out under the pressure of the spring f.

When the parts are to be assembled the setting lever is first inserted or mounted separately, that is to say, with the push-button removed therefrom by placing the shaft a of the lever in the bores or bearings e elongated to form a shallow slot e^1 (for the passage of the two cams a^1 and a^2), subsequently turning the lever by about 180° in order to bring the cams a^1 and a^2 into downward position, as shown in Figure 8, so that cam a^1 will abut against the wall of the frame to secure the shaft a against axial displacement, and the bore or aperture c, c^1, see Figures 10 and 11, will coincide with the bore o and notch o^1 of the wall of the frame, in order to allow of the stem d and nose d^1 of the push-button to be inserted therein. This is accomplished by forcing down the push-button in the circular recess a^0 of the lever A against the resistance of its spring f, as far as can be done and with its stem d passing through the bores c and o, while the nose d^1 of the stem passes through the recesses or notches c^1 and o^1 at the same time; subsequently the push-button is likewise turned by approximately 180° which, however, cannot be done except if or when the bores and notches c, o, c^1 and o^1 are in accurately registering positions or coincide, as hereinbefore mentioned. Now, if the setting lever is turned to the position N for firing single shots or to the position R, see Figure 5, for firing several shots in succession, the locking nose d^1 of the button stem d, which due to the rotation of the push-button by about 180° occupies an upward projecting position, will be caused by the spring f to catch into the corresponding notch n^1 or n^2, respectively, in order to lock the setting lever.

It will be seen that the stem of the push-button fitting snugly in the arc-shaped slot n, will be properly guided therein, just as the nose d^1 is shaped and trued to snugly fit in the notches n^1 or n^2 without any undue clearance. Consequently it is impossible for the stem to turn in the slot accidentally or for the nose d^1 to escape by chance out of the notch n^1 or n^2, so that the locking mechanism constituted by the parts in question, will be highly efficient and reliable at all events no matter how many shots are fired in rapid succession, the more so as the notches, such as n^1 and n^2, are located transversely to the firing direction or the direction of the barrel and, therefore, are of self-locking character.

I have not attempted to describe and explain all of the minute details of the construction of the pistol because they are known to those skilled in the art, but I have limited this specification to a detailed description of all essential and novel

features constituting and embodying my invention, in the interest of brevity.

What I claim is:—

1. In a quick-firing pistol having means for selectively setting the pistol mechanism for single or repeat firing, means for locking the setting means in either position, said locking means comprising a stem with a lug thereon cooperating with a slot of segmental shape in the pistol body, said slot having two notches in its upper edge and a notch in its lower edge at the rear thereof communicating with an enlarged recess forming the rear end of the slot, and means for moving the stem to permit the lug to engage either of the first mentioned notches, and to be withdrawn through the last mentioned notch.

2. In a quick-firing pistol, locking means according to claim 1 comprising a push button on the outer end of the stem and a shield in which the push button is guided, said shield covering the segmental slot and also forming a member of the setting means.

3. A quick-firing pistol comprising a grip casing, mechanism in said casing for engaging the pistol to operate for repeat or single firing, a setting device outside said grip casing for selectively setting said mechanism to either condition, and a spring pressed locking device for the setting device, said locking device having a lug of length about equal to the thickness of the casing wall, the full length of said lug lodging in a slot in said wall.

4. A quick-firing pistol of the hammer type comprising a breech operated catch lever and a separate trigger-actuated lever, each independently controlling the hammer action; and setting means for selectively bringing either one of said levers into and the other out of operation, the breech-operated catch lever in single fire and the trigger-actuated lever in repeat fire being held in an inoperative position by said means; said breech-operated catch lever having three arms one extending into the path of the breech, the second engaging the setting means, and the third arm cooperating with a notch in the hammer, and the ratio of the length of said first arm to that of the second arm being about 5:1.

5. A quick-firing pistol of the hammer type comprising a breech operated catch lever and a separate trigger actuated lever each independently controlling the hammer action, a lever for selectively setting the pistol for single or repeat fire, a positive connection between said setting means and the breech operated catch lever whereby said lever is held inoperative during single fire and becomes operative during repeat fire, and means operated by the setting lever for rendering said trigger actuated lever operative only during single fire, the breech operated catch lever having three arms, one extending into the path of the breech, the second engaging the setting means, the third arm cooperating with a notch in the hammer, the ratio of the length of said first arm to that of the second arm being about 5:1.

6. A quick-firing pistol according to claim 5 in which said positive connection consists of a slide bar having a lug, a pivot pin rotated by the setting lever and a projection on said pin engaging the lug of the slide bar.

KARL WESTINGER.