

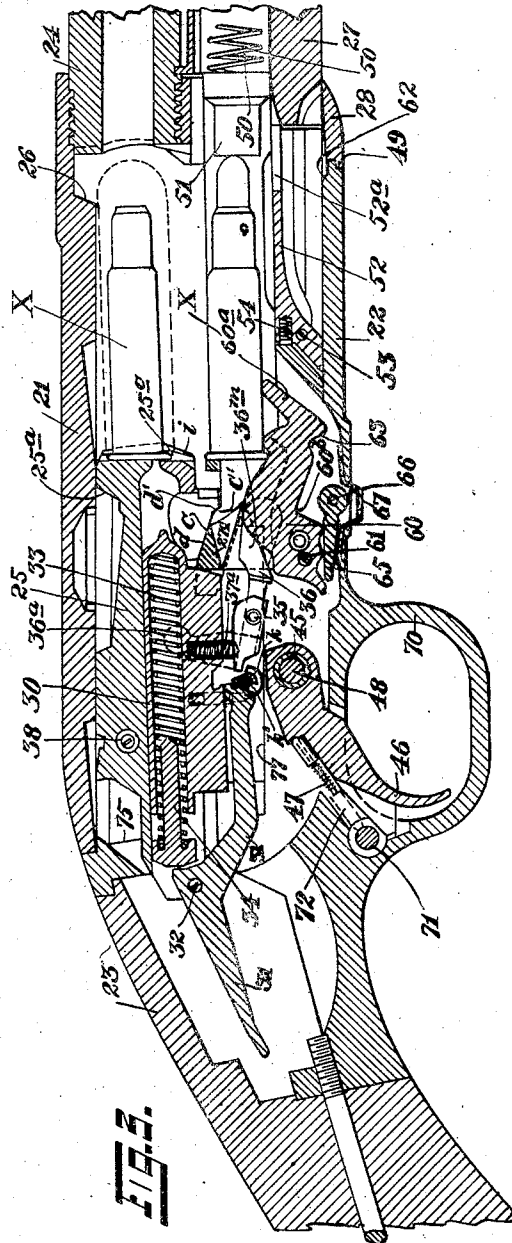
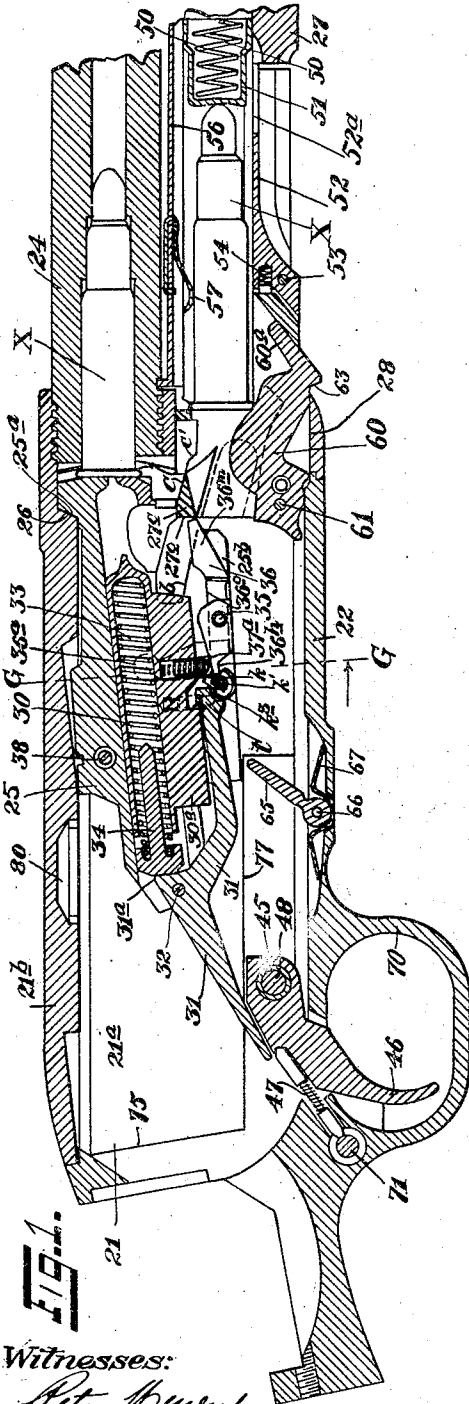
J. D. PEDERSEN.
FIREARM.

APPLICATION FILED FEB. 16, 1912.

Patented Nov. 19, 1912.

5 SHEETS-SHEET 1.

1,044,568.



Witnesses:

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By his Attorney,

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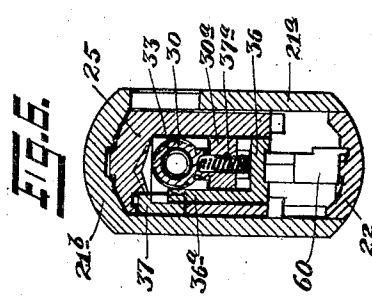
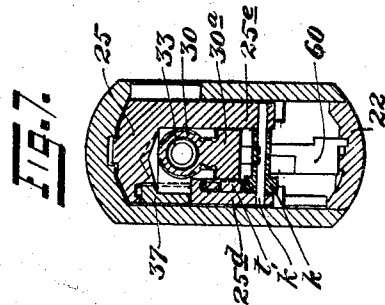
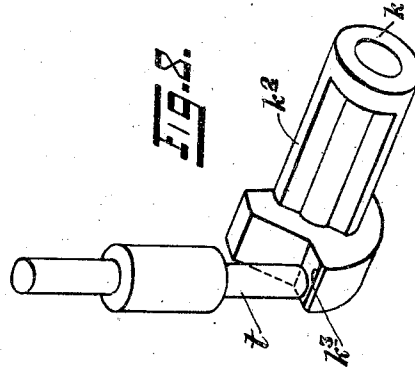
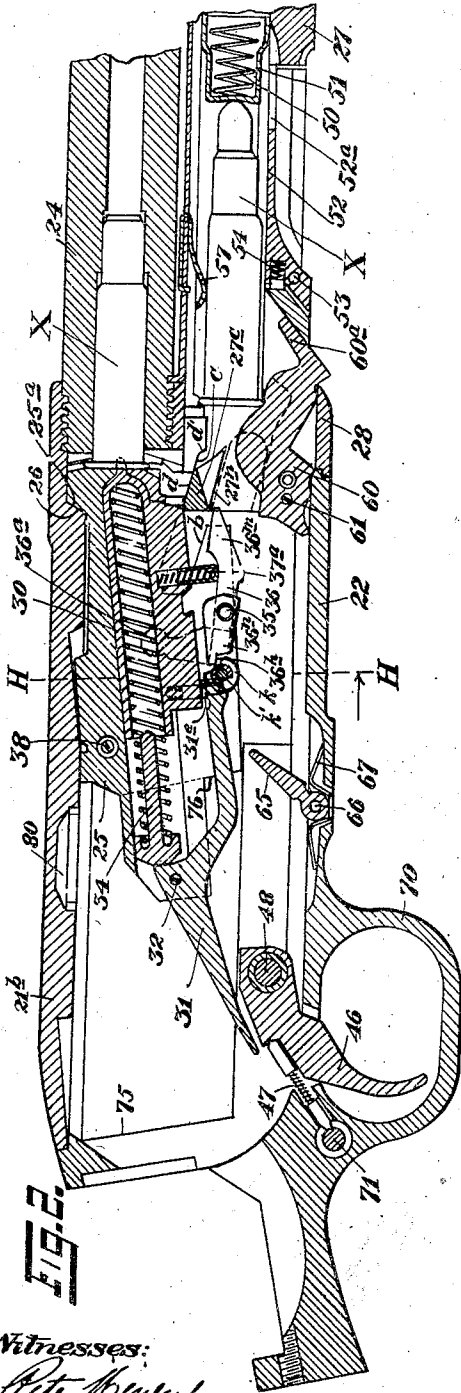
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FIREARM.

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5 SHEETS—SHEET 2.

1,044,568.



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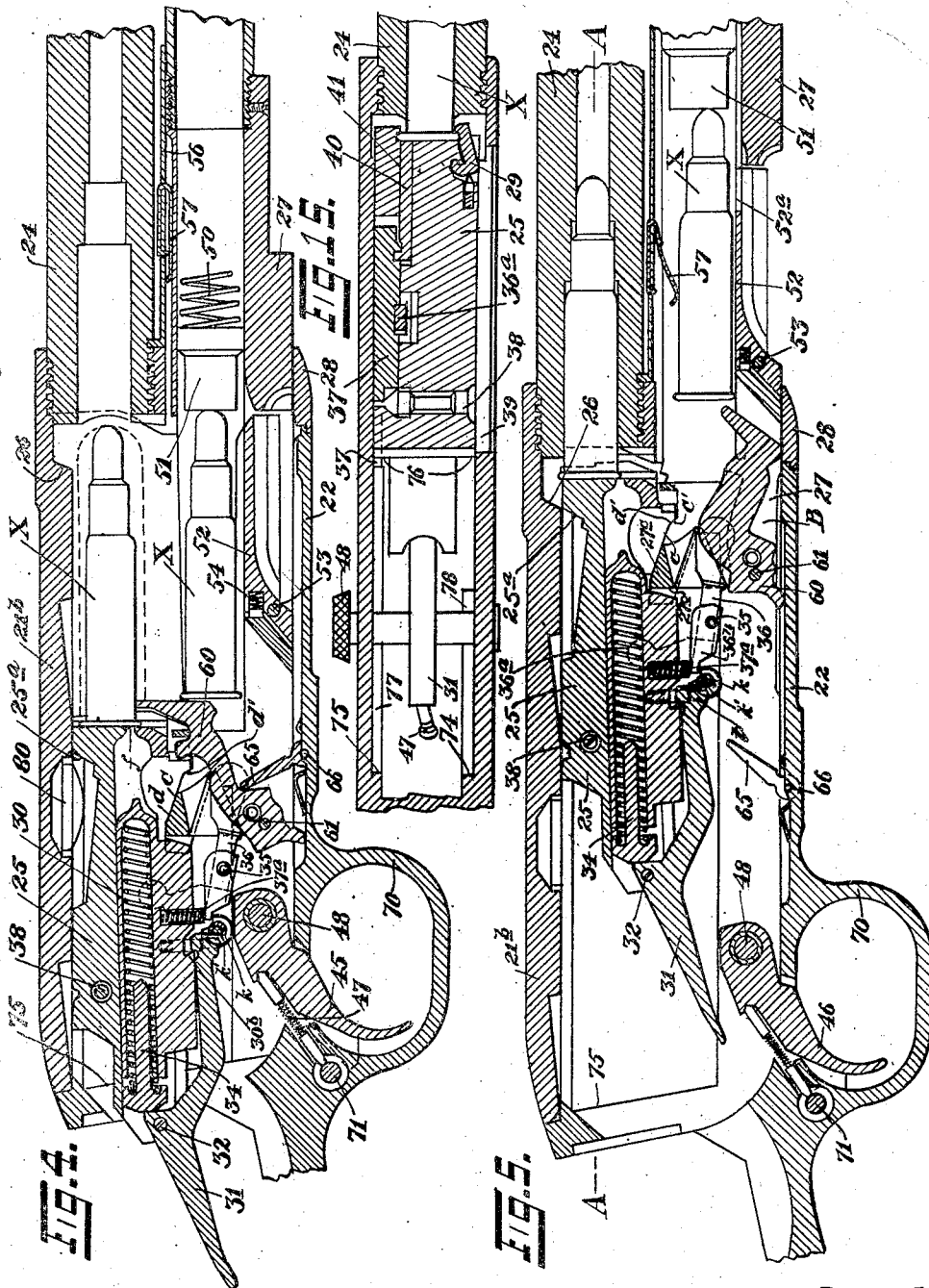
FIREARM.

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5 SHEETS-SHEET 3.

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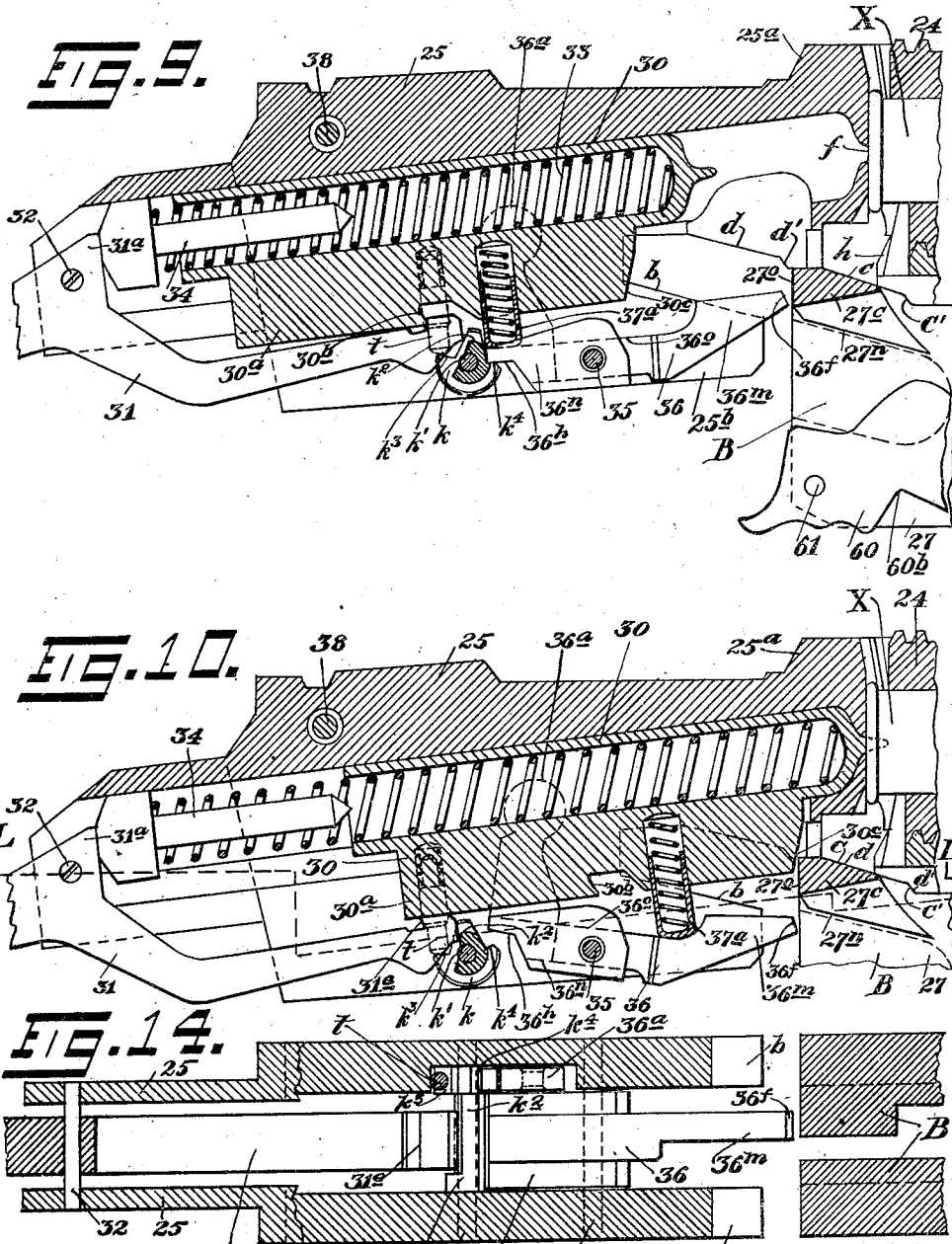
FIREARM.

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5 SHEETS—SHEET 4.

1,044,568.



Witnesses: 31

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J. D. PEDERSEN.
FIREARM.

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5 SHEETS—SHEET 6.

FIG. 11.

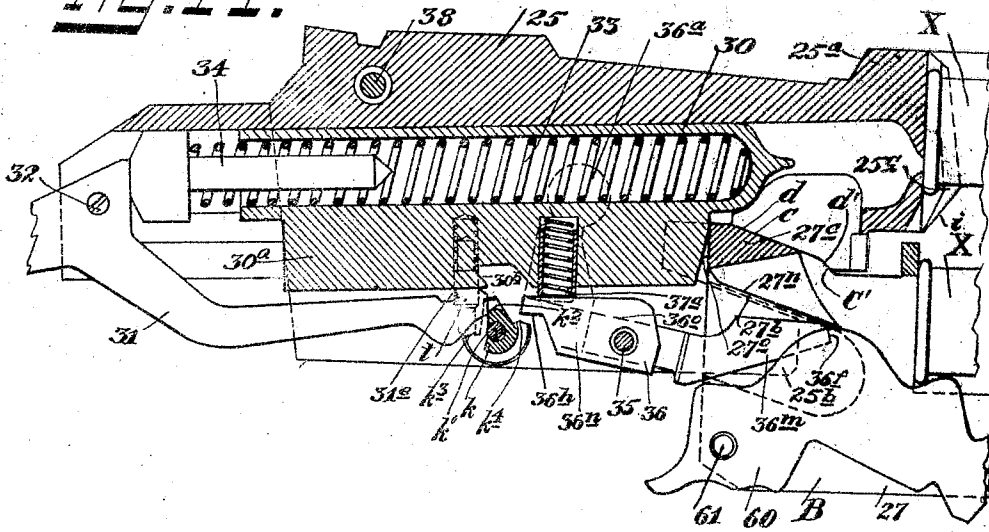
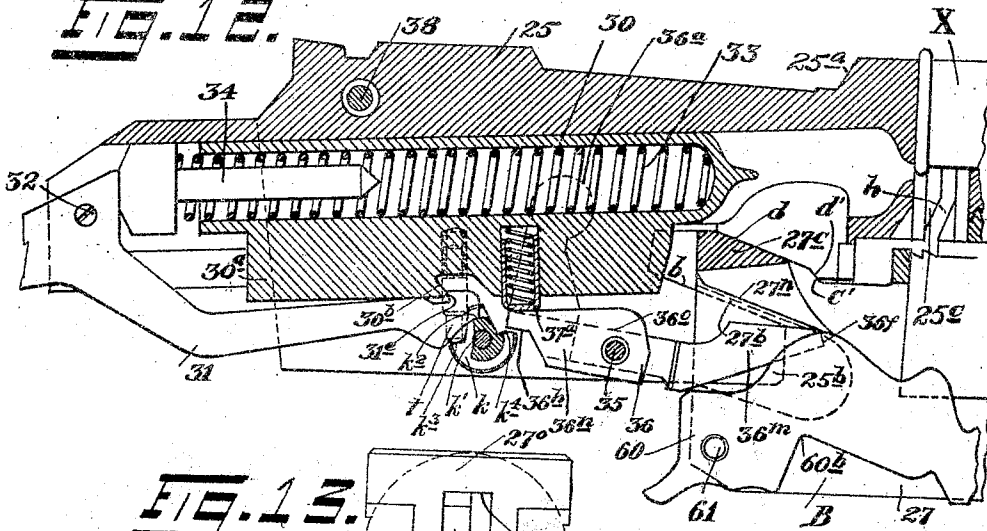


FIG. 12.



UNITED STATES PATENT OFFICE.

JOHN D. PEDERSEN, OF JACKSON, WYOMING.

FIREARM.

1,044,568.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed February 16, 1912. Serial No. 677,970.

To all whom it may concern:

Be it known that I, JOHN D. PEDERSEN, a citizen of the United States, residing in Jackson, in the county of Uinta and State of Wyoming, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

This invention is in certain respects in the nature of an improvement on the mechanism of the fire-arm described in the prior Letters Patent of the United States, No. 963,171, granted to me July 5, 1910, to which reference may be had for a general description of the construction and mode of operation of one mechanism suitable for having my present improvements applied thereto.

The object of my present invention is to furnish means applicable or supplemental to mechanisms of the class described in my said prior patent, whereby to effectively control the action of the same and more fully guard against the possibility of accident or defective operation from any cause.

One of the objects which I have sought to accomplish when my present improvements are applied to any system of mechanism such as or analogous to the one illustrated in said prior patent, is to lock the sear into engagement with the cocked firing-pin prior to the complete placing and blocking of the breech-block in firing position, and to lock the block-actuator against retraction at or before the unlocking of the sear.

In this application, I have illustrated my present improvements as adapted and applied to the particular form and arrangement of mechanism shown in said prior patent; and, therefore, for convenience in illustrating these improvements, I have reproduced in the accompanying drawings the principal views of the drawings in that patent, but modified to also represent the improvements which are now added; these views, with others I have made supplemental thereto, are as follows:

Figure 1 is a sectional side view, (corresponding with Fig. 3 of said Patent No. 963,171,) showing the loaded fire-arm with its mechanism in position ready for firing. Fig. 2 is a similar side view showing the mechanism in the same position as in Fig. 1, but after firing and with such changes in the position of certain parts as result from pulling the trigger. Fig. 3 is a similar side view (corresponding to Fig. 5 of the said patent) drawn adjacent to Fig. 1, to facilitate com-

parison therewith, and showing the slidable breech-block in nearly its fully open or retracted position, and the shell of the spent cartridge about to be ejected. Fig. 4 is a similar side view (corresponding with Fig. 7 of the said patent) showing the mechanism after the block and the details thereon have been carried back to their extreme rearward position (not shown) and then carried forward nearly to their position in Fig. 3; this view, Fig. 4, illustrates the manner of elevating a new cartridge into position ready for re-loading the fire-arm, and with the sear locked into engagement with the cocked firing-pin. Fig. 5 is a similar side-view, (corresponding to Fig. 10 of said patent), showing the breech-block mechanism carried forward nearly to its extreme forward position, ready for the block to be elevated at its front end into locked engagement with the frame or receiver, and to be blocked in such position ready for firing, as shown in Fig. 1 of the accompanying drawings. Fig. 6 is a cross-sectional view in line G—G, of Fig. 1, and corresponding with Fig. 18 of said patent; it is reproduced herein to facilitate comparison of the preceding views with each other and with those which follow. Fig. 7 is a similar sectional view on line H—H, of Fig. 2, and illustrates one way of mounting the sear-lock in a space between the side walls of the block of the breech mechanism. Fig. 8 is an enlarged, perspective detail view of the form of sear-lock which is shown in the preceding figures. Figs. 9, 10, 11, and 12, are enlarged side-views, (in which some details are shown partially broken away) of the slidable breech-block mechanism, for more clearly illustrating the successive positions which the parts thereof assume during a complete cycle of their movements in the operation of the fire-arm; these views correspond to Figs. 1, 2, 3, and 5, respectively, of the accompanying drawings. Fig. 13 is an end elevation of the block-actuator portion, B, of the action-bar. Fig. 14 is an under side view of the block mechanism, drawn in projection with and below Fig. 10, to facilitate comparison therewith, and Fig. 15 is a sectional view taken on line A—A, Fig. 5, looking in the direction of the arrows.

Similar characters designate like parts in all the figures. Such reference characters as are shown in the drawings and are not mentioned herein, will be found described

in said prior patent in connection with features not essentially or directly involved or comprised in the subject-matter of this application.

5 The parts shown herein, and which are or may be the same, or substantially the same as illustrated and described in my said prior patent, comprise the following: The frame or receiver, 21, and its interior
10 space and guiding surfaces for the block-mechanism (including the recoil abutment 26) and for the action-bar; the butt stock and its attaching means; the barrel, 24; the action-bar 27, with its tubular magazine,
15 and excepting the block-actuator portion thereof, herein designated in a general way by B; the trigger plate 22, and its attaching means; the trigger 46, pivot 45, guard 70, and safety-lock 71, with their minor details;
20 the magazine-spring 50, follower 51, and the cartridges, as X, X, supplied thereby to the loading mechanism; the extractor, 29, and the means for supporting and operating the same; the cartridge carrier, 60, its
25 pivot, 61, and its actuator device 65, with their details and appurtenances; the loading door, 52, with its opening 52^a, and the pivot and spring; the slidable breech-block, 25, with its cartridge-holding grooves and
30 lips,—cams and shoulders,—its locking face 25^a, and the means for engaging or carrying the several operative parts,—except as to the sear-lock and actuator therefor hereinafter described and not shown in said patent;
35 the firing-pin, 30, with its sear-catch, actuator 37^a, lock-pivot 35, main-spring 33, and sear-pivot 32; the sear, 31, except as to the sear-lock catch hereinafter described; the reciprocatory inertia-member, as 37,
40 with its connected shell-ejector, 40, and its operative connection 36^a with an arm of the action-bar lock; and the device, as 38, for manually disengaging the action-bar lock, as shown in Fig. 15.
45 In place of the action-bar lock 36 of said prior patent, I have herein substituted therefor a combined action-bar-lock and sear-lock-retractor, which, for convenience, I have herein designated in a general way
50 by the reference number 36.

As in my said prior patent, the slidable breech-block, 25, is herein shown fitted to receive a firing-pin member, 30, which is arranged to slide therein, and with the sear,
55 31, and the action-bar lock, 36, both pivotally supported thereon and located between the depending side-walls of the block. For directly co-acting with these two members 31 and 36, and for indirectly but positively
60 co-acting through these members with the firing-pin and other members, I have provided a rotatively-retractable sear-lock, located on a pivot *k*' in the block 25, in position to engage with the sear for locking the
65 same into engagement with the fully-re-

tracted firing-pin; and in position for being itself retracted out of such sear engagement by the member 36. In this instance I have shown the sear-lock, designated in a general way by *k*, as having the form of a retractably supported member on a pivot, *k*',
70 which is preferably a screw or pin removably supported in the depending side walls of the breech-block 25. For this member *k*, I prefer the rotative or oscillatory form illustrated in the perspective detail view, Fig. 8,
75 and also shown with some portions broken away, in Figs. 7 and 9 to 12, which illustrate the step-by-step operation of the same. For engaging the sear, (as in Fig. 12) this member *k* has a lock-face at *k*², and at *k*³ has a bearing face for some suitable sear-lock actuator, preferably of a constantly-acting character, as *t*, which is shown carried by the block 25. Another bearing face, as *k*⁴,
80 is located for being acted upon by an arm or face of the member 36, whereby to retract the sear-lock *k* out of the position where it might engage the sear for locking the same; such a retracted position is shown in Fig. 9.
85

The firing-pin, as 30, is shown arranged to have, as usual in the said class of fire-arms, a spring-derived forward movement or stroke, and a manually-derived backward stroke or movement into the cocked or ready-to-fire position, as shown for instance in Fig. 12. When in this retracted position, the hook or catch 31^a on the sear 31 engages with the corresponding sear-catch 30^b of the firing-pin, and for disengaging these catches by withdrawing the sear away from the firing-pin, some suitable device or trigger may be used, as for instance the trigger 46, more fully described in my said prior patent; but other kinds or forms of sear-retracting or trigger devices may be preferable and may therefore be employed in some instances. By the term stroke of the firing pin, and stroke of the firing-pin member, I refer to the movement of such member relatively to the breech-block.
100

On the recoil of the fire-arm, the inertia-block 37, operating through its connection with the arm 36^a, acts in a forwardly direction relatively to the movement of the fire-arm, to turn or oscillate the member 36 on its pivot 35 and thereby forcibly elevate or retract to its ineffective position, the bearing face 36^b of the rearward arm, or lever arm, 36ⁿ of said member 36 away from the sear-lock *k*, which is thus rendered normally operable by its actuator *t*. The operative connection between the members 36 and 37 should be such that force may be transmitted thereby from each said member to the other.
105 In this instance, the arm 36ⁿ serves as a sear-lock retractor for releasing the sear, while the spring-operated actuator *t* serves as the sear-lock actuator for moving the sear-lock (whatever may be the style or
110 115 120 125 130

form or specific construction which this may have) into position at the proper time for so engaging with the sear as to positively hold or lock the same in engagement with the firing-pin catch, (see Figs. 11 and 12). For this purpose the sear is provided at some suitable location thereon with a catch, as 31^a, made and located for acting in opposition to the retractive or firing movement of the sear. In practice I find it to be convenient, and deem it to be desirable to locate this sear-lock-engaging catch at and on the forward end or arm of the sear, and I have, therefore, selected this arrangement for herein illustrating the said feature and the combinations involving the same.

The sear-lock actuators, as *t* and 37^a, of relatively small and relatively large force, respectively, consist essentially of some suitable and properly located springs, but in practice these springs are preferably of the usual helical kind supplied with some guide-pin or bearing piece supplemental thereto and which bears directly on the member to be actuated thereby, and therefore for convenience I have herein considered those spring-actuated parts *t* and 37^a, as being spring operated actuators of and for the members *k* and 36, respectively.

In respect of the sear-lock *k*, the breech-block mechanism comprises two sear-lock actuators, (as *t* and 37^a), which operate on the sear-lock, the one (*t*) directly and continuously, and the other (37^a) indirectly and intermittently; but said device 37^a is more properly a connection or transmitter from the firing-pin member, 30, from which the power is immediately derived; and, hence, I regard the firing-pin as the actuator proper of this multi-function member 36. The actuator 37^a should, of course, have an actuation power greater than that of the device *t*. The device 37^a is operated into active relation with the lever-arm 36^a by the backward stroke of the firing-pin member, and when arranged as herein shown has a sliding engagement with the member 36. Said mechanism further comprises a locking device which consists of two co-acting locks, (as *k* and 36) both operable by one actuator (as 37^a) which has a traveling movement relatively to each of these locks, and whereby one said lock becomes operative for its locking-function alternately with the other said lock; and, whereby the breech-block releaser is locked against action while the sear in its firing position is being unlocked or released for retraction to fire the fire-arm.

When the sear-lock is retracted (Fig. 9) it is held in this position by the retractor device, as 36^a, (preferably having the form and arrangement of a pivotally supported lever-arm), until this device shall itself be shifted or operated into its own retracted position, Figs. 10, 11 and 12. This retrac-

tion of the sear-lock-retractor is directly effected, in the present instance, by the forward or firing stroke of the reciprocatory firing-pin member 30, which, in practice, may act for this purpose through some suitable actuator or transmitter-connection, as 37^a; this actuator-connection is operative or movable with said member 30, and is thereby locatable alternately in two operative positions. By such means the sear-lock is released and allowed at once to assume a normally engageable position relatively to the sear on the firing-pin nearing the forward end of its stroke, and thus I provide for the re-locking of the sear into engagement with the firing-pin however quickly this pin (after such forward stroke) may be retracted to its sear-engaging or cocked position. Thus, in the present embodiment of my invention, the intermediate member 36 is a combined sear-lock-retractor and block-actuator lock, and is arranged for effecting those two functions or operations on the rearward and forward strokes, respectively, of the firing-pin member which constitutes the carrier and actuator for said intermediate member. The member 36, considered with respect to the said plurality of functions thereof, may be said to be operatively-intermediate between the sear-lock and the firing-pin member, and also between the sear-lock and the block-actuator portion B, of the action-bar.

The block-actuator, as B, during its rearward stroke relatively to the block 35, constitutes combined in one device, a firing-pin retractor and a retractor for the sear-lock-retractor, whereby this latter device is held in an inoperative relation to the sear-lock during the backward stroke of the firing-pin to its cocked position in said block. Thus, in this two-lock safety-device, the lock-action-timing means is operable by the co-action of the block-actuator and the transmitter-connection for retaining the sear in locked position until this block-actuator has been locked in firing position.

The slidable breech-block, 25, (as more fully described in my said Patent #963,171), has an extended longitudinal movement in the frame or "receiver," 21, and at its forward end has an upward movement into engagement with a frame abutment, 26, for sustaining the pressure of the fired cartridge, and from thence has a downward movement for disengaging the face 25^a of the block 25, from such recoil abutment. These movements are imparted to the block 25 by the action-bar 27, the rearward end of which has inclined faces and other details (also more fully described in said patent) whereby this part of the action-bar serves as the block-actuator for the said longitudinal movements, and also for the upward and downward movements of the forward end of the

block. For this latter purpose, the said block-operating portion of the action-bar serves at the end of the forward stroke thereof as a block-lifting device or block-placer, and at the beginning of the rearward stroke thereof as a block-depressing device, or block-releaser; and therefore I have herein designated the rearward part, B, of the action-bar as the block-actuator and also as the block placer-releaser.

The normal position of the details of the mechanism at the moment after firing a cartridge, is shown in Figs. 2 and 10. At this time the sliding member 30 is in its extreme forward position in the block 25; and the lock 36 has its forward end 36^m below the guide-surface or stop-face 27ⁿ of the placer-releaser B, which is thus left free to be slid rearwardly by the operator. On this movement taking place, the block-releaser B first passes over the lock end 36^m, (see Figs. 10 to 12), and depresses the block out of engagement with the recoil abutment 26, to the position in Fig. 12. As a result of this action, said lock-end 36^m is held in its said downward position until the block-actuator, B, again goes forward and elevates the block into engagement with said recoil abutment; but this replacing of the block 25 (see Fig. 9) is complete before the actuator B has quite reached its forward position, so that the lock 36 is not permitted to be shifted by the lock-actuator 37^a, until such forward movement of the member B is fully completed, when, by the passing of the locking face 27^o forward of the lock-end 36^m, this lock-end is instantly forced up rearwardly of the block-actuator B, and at and by this movement, said member 36 also instantly retracts the sear-lock 4 from its engagement with the sear, and thereby permits the sear to be withdrawn from its engagement with the firing-pin. Thus the member B operates not only as the block placer-releaser but also operates to time or delay the retraction of the lock 4 until after this block-actuator has been itself placed and locked in the firing position. The device 37^a is one kind or form of intermittently-acting retractor-operating means which may be so employed as to be operatively-intermediate to the sear-lock-retractor and the firing-pin member.

The block-actuator, B, is also the firing-pin retractor, since on the back stroke thereof, its face 27^o bears against the retraction-face 30^o of the firing-pin 30, and so retracts or slides backward that member in the block 25; this is more fully set forth in detail in my said prior patent. But the said face 27^o of actuator B constitutes a stop or safety abutment against which the firing-pin will strike if thrown forward at any time before said face 27^o passes forwardly out of the range of movement of said firing-

pin face 30^o. Now, that situation of those members only occurs after the block 25 (after reaching its extreme forward position, and being elevated to its fully locked or firing position) has been blocked in its firing position by the flat face 27^o before the face 36^o is out of range of the firing-pin face 30^o; so that if allowed prematurely to go forward the pin or slide 30 would strike the member B, and the cartridge not be fired; and to prevent this kind of misfire by preventing the premature forward movement of the firing-pin, is one of the objects of my present invention. But when the stop face 27^o does pass forwardly out of said firing-pin range of movement, as in Fig. 9, the pressure (or power in reserve) of actuator 37^a by shifting the member 36 instantly brings its forward-end 36^m up behind the block-actuator B, so this cannot be operated, and not until after this blocking is accomplished does the member 36 withdraw the lock 4 from the sear, for permitting this to release the firing-pin. The sear-lock, therefore, is not actually retracted until after the firing-pin retractor is fully retracted, nor until after the safety-abutment 27^o passes beyond the range of the firing-pin forward stroke, and this does not occur until after the block 25 is fully placed and blocked in its position ready for firing; and thus the block-actuator acts through the said intermediate device for delaying the unlocking of the sear until after said block-actuator shall itself have been locked in its forward or firing position by such intermediate devices. In this complete organization of slidable breech-block mechanism, the spring-device (as, for instance, the actuator 37^a, or some device equivalent therefor in such organization), which operates as between, or is operatively intermediate to the firing-pin member and the sear-lock-retractor, has at successive times several functions. When the firing-pin goes to the forward end of its stroke, said device is an actuator for at once retracting the sear-lock-retractor; when the firing-pin is retracted, said device acts as a spring-operated or yielding transmitter-connection for storing up the power which, later (on the full forward movement of the block-actuator B,) will be required for advancing the sear-lock-retractor into its operative position; this power-storage is effected by the inclined position of the bearing-face 36^o, of the member 36, (see Figs. 11 and 12), while this member is held down at its forward end 36^m, engaging under the inclined guide-face 27ⁿ of the main actuator, B, during the retraction of the firing-pin in the breech-block, thereby compressing that spring-device from its position in Fig. 10 to its position in Figs. 11 and 12. Thus the power is stored up and held in reserve ready for operating the sear-lock retractor when

the proper time arrives therefor, as herein-after further explained.

After the fully retracted firing-pin is caught by the sear, and the block 25 has gone forward as in Fig. 12, the block-actuator B is then in full engagement with, and ready to begin the elevation of the forward end of the block. At this time, the forward end 36^m, of the combined actuator and lock 36 engages under the inclined guide surface at 27ⁿ on actuator B, and is thus held with its opposite end 36ⁿ retracted out of engagement with the sear-lock *k*, notwithstanding that at this time the actuator 37^a has gone to a position rearwardly of the pivot 35. As the block-actuator B is now drawn forward from its position in Fig. 12 to nearly the position in Fig. 9, this contact of arm 36, on the guide 27ⁿ, continues to maintain the said retraction of arm 36 away from lock *k*, until after the forward end of the block is fully placed into its firing position shown in Fig. 9. During the last part of this forward movement of actuator B, (in practice one-eighth to one-fourth of an inch may be so used) this actuator draws off from the lever-arm 36^m of lock 36, and also passes beyond the range of the firing-pin stroke; this release of the lock arm or detention-arm 36 permits the actuator 37^a instantly by its reserve power, to operate the lock and actuator-lock 36 which thereby assumes its position in Fig. 9, where it is shown with its front end 36^f locking the member B against backward movement, while its rear end 36ⁿ has retracted the sear-lock, *k*, out of engagement with the sear-catch 31^s, thereby resetting the inertia-member 37 in its rearward position ready for being operated by the recoil, and permitting the fire-arm to be fired. This being done by disengaging the trigger in the usual way, the firing-pin goes forward, as shown in Fig. 10, being permitted to do this by the actuator face 27^o being in the forward position here shown. This operation of the firing-pin carries the actuator 37^a forward of the pivot 35 and thereby throws down the lock-end 36^m of member 36, so that this lock-end will pass under the said guide-surface 27ⁿ on the next backward movement of actuator B; and at the same time the rearward arm 36ⁿ of this member 36 is retracted out of engagement with the lock *k*, which thus becomes engageable again with the sear when the proper moment arrives therefor. The entire cycle of operations may now be repeated as before. For a description of the manner of using and ejecting the cartridges, reference may be had to my prior patent.

The breech-block, as will now be seen, has combined therewith and thereon, a co-acting train or series of three members all co-acting, also, with a reciprocatory spring-actuated firing-pin-member, which is mount-

ed on and carried with said block. One said member of that train (in this instance the rearward member thereof) is the sear, as 31, pivotally supported at 32 on the block, and is spring-actuated for engaging the retracted firing-pin. The second member of such train is the sear-lock, as *k*, which is shown pivotally or retractably supported on the block in position for engaging the sear when this is itself engaged with the firing-pin, thereby forming a compound locking means for the retracted firing-pin. And the third member, as 36, is the sear-lock retractor, also shown pivotally supported on the block and arranged for operation by the firing-pin member to retract the sear-lock on one stroke of the firing-pin and to release such retraction on the other stroke thereof. Thus, of this train of three co-acting members, the two terminal members of the train co-act directly with such reciprocatory firing-pin member, while the middle member of that train, as *k*, directly co-acts with each of said terminal members. This system of the said four coöperating members carried on or with the block, also co-act and operate with the member B, which combines in one device, the block-actuator, the firing-pin retractor, and the retractor for that member (as 36) of said train which constitutes the combined sear-lock-retractor and block-actuator-lock.

The member 36 has the forward lever-face, as 36^f, in such operative connection with the block-actuator, B, as to constitute the retractor-releasing means which times the release of the sear-lock-retractor to occur after the full placing of the block 25 in its firing position, and at the time the block-actuator passes forward of the range of movement of the firing-pin; thus the firing-pin and sear are both left or remain in their locked positions until after the breech-block is placed and blocked in its firing position by the block-actuator which, therefore, is the sear-release timer, whereby the firing-pin transmitter-connection is allowed to become operative for applying the power held in reserve therefor to the withdrawal of the sear-lock, thereby releasing the sear; and until this sear-release occurs, the firing-pin remains locked by a compound locking, since the sear which directly locks or holds the firing-pin retracted is itself locked into that engagement.

When, in any instance, the forward part or lock-arm 36^m of the member 36 shall be omitted, then this member 36 will constitute only the sear-lock retractor, which, as before, will be operated forwardly and backwardly by the alternate strokes, respectively, of the reciprocatory firing-pin member 30; and will also, as before, be forwardly operated by the inertia-bar 37. Thus the member 36, when arranged as herein illustrated,

is actuated in one and the same direction (which is to withdraw the sear-lock retractor to its inoperative position relatively to said lock) from the combined operation or action of the firing-pin and the said inertia-bar or member; and this result is due to force transmitted (initially from the main actuator B,) through the firing-pin and the spring-device, as to the first action, and to the force of the recoil, as to the second action. These two actions occur, in practice, in such quick succession that the force of the first action hardly becomes effective before it is supplemented by the force of the recoil, so that the two said forces are practically concurrent in point of time, and thus jointly operate for producing and insuring the retraction or withdrawal of the sear-lock retractor.

When the main actuator is forced back relatively to and with the block to the extent of fully retracting the firing-pin, this full retraction of the block-mechanism operates through the inertia-member 37 (then positively actuated by the abutment 75 for ejecting the spent cartridge), and in connection with the sear-lock-retractor to forcibly and positively hold this retractor in its ineffective position at the moment when the sear normally engages into the firing-pin notch 30^b, and by this means I further insure the proper operation of the sear-lock without any interference from its retractor. The block-actuator B, pushes back or retracts the firing-pin to its cocked position while normally holding the member 36 against being operated by the said firing-pin transmitter-connection, and while the block and the firing-pin are both fully retracted, the inertia-member is actuated forwardly and positively on the block for positively placing or holding the sear-lock-retractor in its ineffective position.

The main, or block actuator B, simultaneously holds the sear-lock-retractor in its ineffective or retracted position while pushing back the firing-pin, and continues these concurrent functions until it has pushed the block-mechanism back to the point where the member 37 forcibly meets a suitable frame abutment, as 75; the actuator B, thus operates directly on the sear-lock-retractor (when the forward or detention arm, as 36^m, thereof is not omitted) and operates indirectly through the block itself for concurrently acting positively upon the sear-lock-retractor by the reaction of and from the fixed frame-abutment. And, since the member 37 is, in this instance, also employed as the ejector actuator, (in connection with said abutment), that positive retraction of the sear-lock-retractor, the positive action of the shell ejector when the block is in its fully retracted position, the maintenance of the compression of the transmitter-connection

between the firing-pin and said sear-lock-retractor while this is itself retracted, and the locking of the sear into engagement with the firing-pin, all occur, at the same time, on or by the full completion by said main actuator, B, of its rearward stroke in the fire-arm and relatively to the breech-block.

When the mechanism is in position for firing, as in Figs. 1-9, and should it then be desired to withdraw the unfired cartridge, the operator by pressing on the plunger 38, moves forward the inertia-member 37, and through the arm 36^a, shifts the member 36 for at once unlocking the actuator B and releasing the sear-lock *k*, which therefore locks the sear so the firing-pin cannot be released. The actuator B may now be retracted and the block 25 operated to withdraw and eject the unfired cartridge; and while this is being done, the firing-pin remains locked against being released accidentally or otherwise; thus the fire-arm is safe-guarded against the risk of firing the cartridge by any means after the manual unlocking of the action-bar and before this bar shall have been retracted far enough to prevent the firing-pin from making nearly its full stroke. My present improvements, therefore, comprise means for manually effecting the re-locking of the sear into engagement with the retracted firing-pin while the mechanism of the fire-arm is otherwise in position for firing. The described manually-operable connection with the sear-lock retractor, 36^a, being arranged for retracting this member and thereby releasing the sear-lock *k* while the mechanism is in firing-position, the retracted and unlocked firing-pin is instantly relocked when such connection is so operated, and thereby the cartridge is safe-guarded from an accidental release of the firing-pin during the time between the operating of the member 38 and the actual retraction of the block-actuator; and, in practice, this period of time may be of considerable duration.

The member 30 is the "firing member" in the mechanism shown in the drawing, since this member supplies the power for forcing the firing point into the cartridge primer; in this instance, also, I have shown this point carried directly on the sliding firing member 30, but in some cases, if desired, the firing point may be a separate piece located close to the front end of the block 25, and thus stand intermediate to the firing-member and the primer for receiving the blow from the said firing-member and transmitting the power thereof to the primer, in a well known manner. Therefore in this application I regard and have used the terms firing-pin and firing-member as referring to the member 30 or such form of device as may be equivalent therefor, whether or not such

member of the mechanism has the firing point directly thereon.

Having thus described my invention, I claim:—

1. The combination, with a reciprocatory breech-block and with a reciprocatory firing-pin member carried thereon, of a sear having a catch for engaging the retracted firing-pin, a sear-lock retractably supported on the breech-block in position for locking the sear into engagement with the firing-pin, a sear-lock retractor also retractably mounted on said block and located and operable for engaging the sear-lock for retracting this lock and unlock the sear, and a connection operative between the firing-pin and the sear-lock retractor and arranged for actuating this retractor and thereby retracting the sear lock after the backward stroke of the firing-pin member in the block.

2. The combination, with the slidable breech-block and the reciprocatory firing-pin member, of the sear having one catch for engaging the retracted firing-pin and having a second and opposing catch for engaging a sear-lock, the sear-lock supported on the breech-block in position for engaging said second sear-catch, a sear-lock retractor also mounted on the breech-block and located and operable for engaging the sear-lock for retracting this lock out of engagement with the sear, and a connection operative between the firing-pin and the sear-lock retractor and arranged for withdrawing this retractor from the sear-lock on the forward stroke of the firing-pin.

3. The combination, with a reciprocatory breech-block and with a reciprocatory firing-pin member carried thereon, of a sear having a catch for engaging the retracted firing-pin, a sear-lock retractably-supported on the breech-block in position for engaging and locking the sear into engagement with the firing-pin a sear-lock retractor also mounted on the breech-block and located and operable for engaging the sear-lock for retracting this lock out of engagement with the sear, and an actuation-connection movable forwardly and backwardly with the firing-pin and operative between the firing-pin and the sear-lock retractor and arranged for retracting the sear-lock after the back stroke of the firing-pin and for retracting the sear-lock-retractor on the forward stroke of the firing-pin.

4. The combination, with the slidable breech-block and the reciprocatory firing-pin member, of the sear having one catch for engaging the retracted firing-pin and having an opposing catch for engaging the sear-lock, the sear-lock pivotally-supported in position on the breech-block for engaging said opposing sear-catch, a sear-lock retractor also pivotally mounted on the breech-

block and located forward of the sear-lock in position for engaging the sear-lock for retracting this lock out of engagement with the sear, and a retractor-actuating means movable with the firing-pin and thereby locatable alternately in two operative positions for engaging the sear-lock retractor rearward of its pivot on the back-stroke and forwardly of its pivot on the forward stroke of the firing-pin, and thereby retract the sear-lock retractor from the sear-lock on the forward stroke of the firing-pin and retract the sear-lock from the sear on the back stroke of the firing-pin.

5. The combination, with the slidable breech-block and the reciprocatory firing-pin member, of the sear having one catch for engaging the retracted firing-pin and having an opposing catch for engaging the sear-lock, the sear-lock retractably supported in position on the breech-block for engaging said opposing sear-catch, a sear-lock retractor pivotally mounted on the breech-block and located and operable for engaging the sear-lock for retracting this lock and thereby release the sear, and a connection comprising a spring and carried by the firing-pin in a location thereon for engaging the sear-lock retractor rearward of its pivot on the back stroke and forwardly of its pivot on the forward stroke of the firing-pin, whereby to retract the sear-lock retractor on the forward stroke of the firing-pin and retract the sear-lock from the sear on the back stroke of the firing-pin.

6. In a breech-block mechanism, the combination with the slidable block, as 25, fitted for carrying therein a sliding firing-pin member, and having the depending side walls, as 21, 21, of the sliding firing-pin member, as 21, of the sliding firing-pin member, as 21, having the catch, 30^a; the sear located for engaging the firing-pin catch, 30^a, and having a catch, as 31^a for engaging a sear-lock; two pivots, k' and 35, located the one rearward of the other, and both below the firing-pin member forward of the sear and supported by said depending side walls; a retractable sear-lock mounted on the rearward pivot k' and held in place longitudinally thereon between the side walls, and having a face located for engaging the sear-catch 31^a; constantly-acting sear-lock-actuating means for making the sear-lock normally engageable with the sear; a sear-lock-retractor mounted on the forward pivot 35, and held in place longitudinally thereon between the side-walls, and having a rearward lever-arm in position for engaging and retracting the sear-lock; and, intermittently-acting retractor-operating means operatively intermediate to the said retractor and the firing-pin member.

7. In a breech-block mechanism, the combination with the slidable block, as 25, fitted for carrying therein a sliding firing-pin

member, and having the depending side-walls, as 21, 21, and with a block-actuator which also constitutes a firing-pin retractor, of the sliding firing-pin member, as 30, having the catch 30^a; the sear located for engaging said firing-pin catch, and having the opposing catch, 31^a, on the forward end of the sear for engaging a sear-lock; the pivot k' located forward of the sear and below the sear-catch 31^a, and supported by said side walls; the rotatively-retractable sear-lock supported on said pivot between said side-walls, and having the face, as k'' , in position for locking against the catch 31^a when the sear engages the firing-pin catch; sear-lock-actuating means arranged for operating the sear-lock toward its sear-engaging position; and a combined sear-lock-retractor and block-actuator-lock supported between said side-walls forward of the sear-lock and operatively-intermediate between the sear-lock and the firing-pin member and also between the sear-lock and said block-actuator, whereby to actuate and to properly time the movements of the sear-lock in the mechanism.

8. In a fire-arm having a slidable breech-block mechanism, the combination with the slidable block, the reciprocatory firing-pin member carried therein, and the sear, of the rotatively-retractable sear-lock, as k , a sear-lock actuator, as t , carried by the block and acting on the sear-lock for holding this normally engageable with the sear, a lever-arm, as 36^a, located on the block in position for retracting the sear-lock, and a lever-actuating spring-device operated by the firing-pin member on its backward stroke into active relation to said lever-arm, and having an actuation-power greater than said sear-lock-actuator.

9. In a fire-arm having a slidable breech-block mechanism, the combination with the slidable block, the reciprocatory firing-pin member carried therein, and the sear, of a rotatively-retractable sear-lock, k , having the retractor-face k' , constantly-acting means operative on the sear-lock for holding this normally engageable with the sear, the lever arm 36^a having a bearing face, as 36^b, in position for engaging on said sear-lock face k' , and lever-actuating means arranged for operating said lever-arm after the firing-pin member is retracted and locked in firing-position.

10. In a fire-arm having a slidable breech-block mechanism, the combination with the slidable block, and with the retractable firing-pin member carried thereon, of the slidable block-actuator also operable on its full rearward stroke for retracting the firing-pin; a safety-lock mechanism carried on the block and consisting of a co-acting train of three pivotally-supported members,

viz.—the rearward member or sear, the middle member or sear-lock, the forward member or sear-lock-retractor, said rearward and forward members co-acting directly with the firing-pin member, and said middle member co-acting directly with said rearward and forward members; and a combined detention-arm and lock-arm on said forward member in position for engaging said block-actuator during the retraction thereby of the firing-pin member, and for locking the block-actuator in the firing position and instantly thereafter unlocking the sear, substantially as set forth.

11. In a fire-arm having a slidable breech-block mechanism, the combination with the slidable block, and with the retractable firing-pin carried thereon, of the slidable block-actuator engageable in the block and operable on its full rearward stroke for retracting the firing-pin; a sear located for engaging the firing-pin when this is in its retracted position in the block; and a compound locking device mounted on the block and comprising a lock for the sear and a lock for block actuator, and comprising a lever having a continuously-active actuation-connection with the firing-pin member and an intermittently-acting detention-connection with the block-actuator, and organized, substantially as described, for actuation in alternate directions from such operative connection while this is in the forward and retracted positions thereof, respectively, and for timing these movements by the movements relatively to each other of the firing-pin member and the block-actuator.

12. In a fire-arm having a slidable breech-block mechanism, the combination with the slidable block, and with the retractable firing-pin member carried thereon, of the slidable block-actuator also operable on its full rearward stroke for retracting the firing-pin; a sear located on the block for engaging the firing-pin member when this is in its retracted position in the block; and a safety-lock mechanism mounted on the block and comprising a lock for the sear and a lock for the block-actuator, and having an operatively-connected inertia-member operable by the recoil in a direction for unlocking the block-actuator, and also having operative-connection with the firing-pin member and detention-connection with block-actuator when this is rearward of the firing position thereof, and organized for actuation in one direction from the inertia-member, and in alternate directions from the firing-pin member in its forward and retracted positions, respectively, and for timing these alternate movements by the movements of the block-actuator and of the firing-pin member, substantially as described.

13. In a fire-arm having a slidable breech-block mechanism, the combination with the slidable block, and with the retractable firing-pin member carried thereon, of the
 5 slidable block-actuator engageable in the block and operable on its full rearward stroke for retracting the firing pin; a sear located for engaging the firing-pin when this is in its retracted position in the block;
 10 and a compound locking device mounted on the block and comprising a lock for the sear and a lock for block-actuator, and having operative-connection with the firing-pin and detention-connection with the block-actuator,
 15 and organized for actuation in alternate directions from the firing-pin member in its forward and retracted positions, respectively, and for timing such alternate movements by the movements of the block-actuator and of the firing-pin member relatively to the block and to each other.

14. In a fire-arm having a slidable breech-block mechanism, the combination with the slidable block, and with the slidable block-actuator, of a lock-controlled firing mechanism comprising a sliding firing-pin member having a sear-catch and having a lock-operating transmitter-connection, and located in the block for retraction by the
 30 block-actuator when this makes its full rearward stroke; a sear located for engaging the catch of the retracted firing-pin member; and a two-lock safety-device operable by the co-action of the block-actuator and of the sliding firing-pin member and having
 35 the two locks thereof arranged one for the sear and the other for the block-actuator and organized for one being unlocked while the other is being locked, and having lock-action-timing means operable by the co-action
 40 of the block-actuator and the transmitter-connection for leaving the sear in locked position until the block-actuator has been locked in firing position.

15. The combination, with a slidable breech-block, and with a reciprocatory firing-pin member carried thereon, of a block-actuator, as B, arranged for sliding said block
 50 backwardly and forwardly and for retracting the firing-pin in the block; the sear having a catch for engaging the retracted firing-pin; a sear-lock supported on the breech-block in position for engaging and locking the sear into engagement with the firing-
 55 pin; a sear-lock retractor operatively mounted on the breech-block in position for engaging the sear-lock for retracting this lock and unlocking the sear, and having its forward end adapted to engage with the block-actuator when this actuator is moved rear-
 60 wardly in the block, and having the said forward end in position for locking said actuator, B, when this is in its extreme forward position; and a connection operative

between the firing-pin and the sear-lock retractor and arranged for retracting the sear-lock-retractor on the forward stroke of the firing-pin and to its ineffective position simultaneously with the unlocking of the block-actuator.

16. The combination, with a slidable breech-block and with a retractable firing-pin member, of the block-actuator B, arranged for sliding said block backwardly and forwardly and for retracting the firing-
 75 pin; a sear having a catch for engaging the retracted firing-pin; a sear-lock supported on the breech-block in position for locking the sear into engagement with the firing-pin; a combined sear-lock-retractor and
 80 block-actuator-lock mounted to have an oscillating movement on the breech-block in position for retracting the sear-lock and thereby unlocking the sear, and having the combined detention-arm and lock-arm
 85 located and adapted for engaging with an inclined guide-face of the block-actuator when this is moved rearwardly in the block, and having a lock-face of this arm in position for locking said block-actuator in its
 90 extreme forward position; and a connection operative between the firing-pin and the said combined sear-lock-retractor and block-actuator-lock and arranged for operating and timing this member for retracting the
 95 sear-lock after the back stroke of the firing-pin and when the block-actuator completes its forward stroke, whereby the operation of the sear-lock-retractor is timed to instantly unlock the sear on the locking of the
 100 block-actuator.

17. The combination, with a slidable breech-block and with a reciprocatory firing-pin member carried thereon, of a block-actuator arranged for sliding said block back-
 105 wardly and forwardly and for retracting the firing-pin; the sear, having a catch for engaging the retracted firing-pin; a sear-lock retractably supported on the breech-block in position for locking the sear into
 110 engagement with the firing-pin; a combined sear-lock-retractor and block-actuator-lock operative on the breech-block in position for retracting the sear-lock and thereby unlocking the sear, and having a combined detention-
 115 arm and lock-arm engaging with the block-actuator when this is moved rearwardly of the block, and engaging with and locking said block-actuator when this is in its extreme forward position; and an actuation-
 120 connection carried by the firing-pin member and in sliding engagement with said combined sear-lock-retractor and block-actuator-lock, for operating this combined member for retracting the sear-lock after the back
 125 stroke of the firing-pin and for retracting the sear-lock-retractor on the forward stroke of the firing-pin, the organization being such,

substantially as described, that the operation of the sear-lock-retractor is timed to unlock the sear when the block-actuator reaches the end of its forward stroke, and that the sear-lock retractor is retracted to its ineffective position simultaneously with the unlocking of the block-actuator after the firing-pin reaches its forward position.

18. The combination, with the slidable
10 breech-block, the reciprocatory inertia-member operable therein, and the reciprocatory firing-pin member, of the sear carried on said block in position for engaging the retracted firing-pin, the sear-lock movably
15 supported on the breech-block in position for engaging, locking, and releasing the sear, a sear-lock retractor also mounted on the breech-block in position for engaging the sear-lock for retracting this lock out of engagement with the sear, a spring-operated
20 connection carried by the firing-pin in position for advancing the sear-lock retractor into operating-position on the back-stroke of the firing-pin and for retracting the sear-lock-retractor into its ineffective position on
25 the forward stroke of the firing-pin, and a connection between the inertia-member and the sear-lock retractor, arranged to withdraw the sear-lock from the sear on the back-stroke of the firing-pin, and withdraw
30 the sear-lock retractor from the sear-lock by the combined action of the forward stroke of the firing-pin and of the recoil operating through the inertia-member.

19. The combination, with the slidable
35 breech-block, the reciprocatory inertia-member operable therein by the recoil of the fire-arm, and the reciprocatory firing-pin, of the sear carried on said block in position for
40 engaging the retracted firing-pin, the sear-lock movably supported on the block in position for locking and releasing the sear, a sear-lock-retractor also movably mounted on said block in position thereon for retracting
45 the sear, an operative connection between the sear-lock-retractor and the inertia-member such that force may be transmitted from each one to the other, and operating means comprising a spring-device operatively
50 intermediate to the firing-pin and the connected inertia-member and sear-lock-retractor, and arranged to be locatable into position by the retraction of the firing-pin for simultaneously actuating said retractor
55 to withdraw the sear-lock and reset the inertia-member in position ready for operation by the recoil when the firing-pin shall be released by the sear.

20. The combination, with the slidable
60 breech-block, the sliding inertia-member operable therein, and the reciprocatory firing-pin member, of the sear having one catch for engaging the retracted firing-pin and an opposing sear-lock catch, the sear-lock piv-

otally-supported in position on the breech-
65 block for engaging said opposing sear-catch, a sear-lock retractor also pivotally mounted on the breech-block and located and operable for engaging the sear-lock for retracting
70 this lock out of engagement with the sear, an actuation-connection carried by the firing-pin and thereby alternately located in position for engaging the sear-lock retractor
75 rearward of its pivot on the back-stroke and forwardly of its pivot on the forward stroke of the firing-pin, and a connection between the inertia-member and the sear-lock retractor arranged to withdraw the sear-lock
80 from the sear on the back-stroke of the firing-pin, and to withdraw the sear-lock retractor from the sear-lock by the combined action of the forward stroke of the firing-pin and of the recoil operating through the inertia-member.

21. The combination, with the slidable
85 breech-block, an inertia-member operable relatively thereto, and the reciprocatory firing-pin member, of the sear having one catch for engaging the retracted firing-pin and having
90 an opposing catch for engaging the sear-lock, the sear-lock pivotally supported in position on the breech-block for engaging said opposing sear-catch, a sear-lock retractor also pivotally mounted on the breech-
95 block and located and operable for engaging the sear-lock for unlocking the sear, a transmitter-connection movable with the firing-pin into positions for engaging the sear-lock retractor rearward of its pivot on
100 the back-stroke and forward of its pivot on the forward stroke of the firing-pin, and a connection between the inertia-member and the sear-lock retractor, and arranged to release the sear after the back-stroke of the
105 firing-pin, and retract the sear-lock retractor by the combined action of the forward stroke of the firing-pin and of the recoil operating through the inertia-member.

22. The combination, with the slidable
110 breech-block, the reciprocatory inertia-member, and the reciprocatory firing-pin member, of the sear carried on said block in position for engaging the retracted firing-pin; the sear-lock movably supported on the
115 breech-block in position for locking, and releasing the sear; a sear-lock retractor also mounted on the breech-block, and in position for engaging and retracting the sear-lock; a spring-operated connection carried
120 by the firing-pin member in position for advancing the sear-lock retractor into operative-position on the back-stroke of the firing-pin and for retracting the sear-lock retractor into its ineffective position on the
125 forward stroke of the firing-pin, and a connection between the inertia-member and a lever-arm of the sear-lock retractor, whereby to withdraw the sear-lock from the sear

after the back-stroke of the firing-pin, and withdraw the sear-lock retractor from the sear-lock by the combined action of the forward stroke of the firing-pin and of the recoil operating through the inertia-member.

23. The combination, with the reciprocatory breech-block having in one side thereof a space for receiving an inertia-member, the sliding-inertia-member operable therein, and the reciprocatory firing-pin member, of the sear having one catch for engaging the retracted firing-pin and an opposing sear-lock catch; the sear-lock retractably-supported in position on the breech-block for engaging said opposing sear-catch, a sear-lock retractor also retractably-mounted on the breech-block and located and operable for engaging the sear-lock for retracting this lock and unlocking the sear, a transmitter-connection carried by the firing-pin and located for engaging the sear-lock retractor near its rearward end on the back-stroke and near its forward end on the forward stroke of the firing-pin, and a connection between the inertia-member and the sear-lock retractor, whereby to retract the sear-lock from the sear after the back-stroke of the firing-pin, and to retract the sear-lock retractor from the sear-lock by the combined action of the forward stroke of the firing-pin and of the recoil operating through the inertia-member.

24. The combination, with the slidable breech-block, an inertia-member operable relatively thereto, and the reciprocatory firing-pin member, of the sear having one catch for engaging the retracted firing-pin and having an opposing catch for engaging the sear-lock; the sear-lock retractably supported in position on the breech-block for engaging said opposing sear-catch; a sear-lock retractor also retractably mounted on the breech-block and located and operable for engaging the sear-lock for retracting this lock out of engagement with the sear, a retractor-actuating connection movable with the firing-pin and located for engaging the sear-lock retractor near its rearward end on the back-stroke and near its forward end on the forward stroke of the firing-pin, and a connection between the inertia-member and the sear-lock retractor, thereby to retract the sear-lock and release the sear after the back-stroke of the firing-pin, and retract the sear-lock retractor by the combined action of the forward stroke of the firing-pin and of the recoil operating through the inertia-member.

25. In a fire-arm having on its frame a fixed abutment located for operating an inertia-member, and having a slidable breech-block mechanism, the combination with a reciprocatory firing-pin member carried by

the breech-block, of the sear having a catch for engaging the retracted firing-pin; a sear-lock supported on said block in position for engaging and locking the sear into engagement with the firing-pin, a sear-lock retractor also mounted on the breech-block and located and operable for engaging the sear-lock for retracting this lock out of engagement with the sear, a transmitter-connection operative between and upon the firing-pin and the sear-lock retractor and arranged for retracting the sear-lock on the back stroke of the firing-pin and for retracting the sear-lock-retractor on the forward stroke of the firing-pin, and an inertia-member movable in the block mechanism and connected with the sear-lock-retractor for retracting this retractor by the recoil when the firing-pin goes to its forward position and the arm is fired, and for positively holding this retractor in its retracted and ineffective position from the action of the said abutment when and while the block and the firing-pin are both fully retracted.

26. The combination, with the slidable breech-block, a manually-operable member carried by said block and located to be accessible to the operator when the breech-block is in firing-position, and the reciprocatory firing-pin, of the sear carried on said block in position for engaging the retracted firing-pin, the sear-lock movably supported on the block in position for locking and releasing the sear, a sear-lock-retractor also movably mounted on said block in position thereon for retracting the sear-lock, and an operative connection between the sear-lock-retractor and the manually-operable member and arranged for releasing the sear-lock to thereby relock the sear and firing-pin for safe-guarding the unfired cartridge when this is about to be withdrawn from the barrel of the fire-arm.

27. The combination, with a slidable breech-block and with a reciprocatory firing-pin member carried thereon, of a block-actuator arranged for sliding said block backwardly and forwardly and for retracting the firing-pin; the sear having a catch for engaging the retracted firing-pin; a sear-lock supported on the breech-block in position for locking the sear into engagement with the firing-pin; a combined sear-lock-retractor and block-actuator-lock mounted on the breech-block in position for retracting the sear-lock and thereby unlocking the sear, and for locking said block-actuator when this is in its extreme forward position; and a manually-operable member carried on the block, and operatively connected with said combined sear-lock-retractor and block-actuator-lock, for retracting this member and releasing the said block-actuator and the sear-lock when the mecha-

nism is in the firing position, whereby the manual operation of the sear-lock-retractor and the sear-lock relocks the sear while the block-actuator is at the end of its forward stroke, for thereby safe-guarding the unfired cartridge when this is about to be withdrawn from the barrel of the fire-arm.

28. In a fire-arm having a slidable breech-block mechanism, the combination with the slidable block, and with a reciprocatory firing-member carried thereon, of a slidable block-actuator engageable in the block and operable on its rearward stroke for retracting the firing-member; a sear located for engaging the retracted firing-member, and a compound locking device mounted on the block and comprising a lock for the sear and a lock for block-actuator, and lock retracting means operatively intermediate to the said locks and the block-actuator.

29. In a fire-arm having a slidable breech-block mechanism, the combination with the slidable block, and with a reciprocatory firing-member carried thereon, of a slidable block-actuator engageable in the block and operable on its rearward stroke for retracting the firing-member; a sear located for engaging the retracted firing-member and a compound locking devices mounted on the block and comprising a lock for the sear and a lock for block-actuator, and lock retracting devices including the reciprocatory firing-member and arranged operatively intermediate to the said locks and the block-actuator.

30. In a reciprocatory breech-block mechanism, having a retractable firing-member and a sear for engaging the retracted firing member, the combination of a sear-lock retractably-supported on the breech-block in position for locking the sear into engagement with the retracted firing member, a sear-lock retractor also mounted on the breech-block and located and operable for engaging the sear-lock for retracting this lock out of engagement with the sear, a block-actuator which is also a block placer-releaser, and retractor-operating means between the said placer-releaser and the sear-lock-retractor and arranged for retracting the sear-lock on the back-stroke of the firing-member.

31. In a reciprocatory breech-block mechanism, having a retractable firing-member and a sear for engaging the retracted firing-member, the combination of the relatively-retractable sear-lock supported on the breech-block below the firing-member and forward of the sear for locking the sear into engagement with the retracted firing member, a sear-lock retractor also mounted on the breech-block and located and operable for engaging and rotatively-retracting the sear-lock out of engagement with the sear, a

slidable block placer-releaser, and retractor-operating means between the said placer-releaser and the sear-lock-retractor and arranged for retracting the sear-lock on the back-stroke of the firing-member.

32. In a reciprocatory breech-block mechanism, having a retractable firing-member and a sear for engaging the retracted firing-member, the combination of a sear-lock retractably-supported on the breech-lock in position for locking the sear into engagement with the retracted firing member, a sear-lock retractor also mounted on the breech-block and located and operable for engaging the sear-lock for retracting this lock out of engagement with the sear, a block-actuator which is also a block placer-releaser, and retractor-operating means between the said placer-releaser and the sear-lock-retractor and comprising the firing-member and a lever operable thereby, and arranged for retracting the sear-lock-retractor on the complete forward stroke of the firing-member.

33. In a reciprocatory breech-block mechanism, having a retractable firing member and a sear for engaging the retracted firing-member, the combination with the sear-lock, a, retractably-supported on the breech-block, a sear-lock-actuating device on the breech-lock and located for engaging the sear-lock for retracting this lock out of engagement with the sear, block-placer-releaser, and operating means including the firing-member between the said placer-releaser and the sear-lock-actuating device and arranged for retracting the sear-lock on the back-stroke of the firing-member and for operating the sear-lock-actuating device on the complete forward stroke of the firing-member.

34. The combination, with a slidable breech-block and with a retractable firing member, of the block-actuator arranged for sliding said block backwardly and forwardly and for retracting the firing-member; a sear having a catch for engaging the retracted firing-member; a sear-lock supported on the breech-block in position for locking the sear into engagement with the firing-member, and a combined sear-lock-retractor and block-actuator-lock mounted on the breech-block in position for retracting the sear-lock and for locking the block-actuator in its firing-position, and thereby unlock the sear while locking the block-actuator.

35. The combination, with a slidable breech-block and with a retractable firing member, of the block-actuator arranged for sliding said block backwardly and forwardly and for retracting the firing-member; a sear having a catch for engaging the retracted firing-member; a sear-lock sup-

ported on the breech-block in position for locking the sear into engagement with the firing-member, and a lever having at one end a sear-lock-retractor and at the other
5 end a block-actuator-lock, and mounted on the breech-block in position for retracting the sear-lock and for locking the block-

actuator in its firing position, and thereby unlock the sear while locking the block-actuator.

JOHN D. PEDERSEN.

Witnesses:

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