C. J. JOLIDON.

MAGAZINE FIREARM.

APPLICATION FILED JULY 6, 1909.

1,066,206.

Patented July 1, 1913.

4 SHEETS—SHEET 1.

Fig. 1.

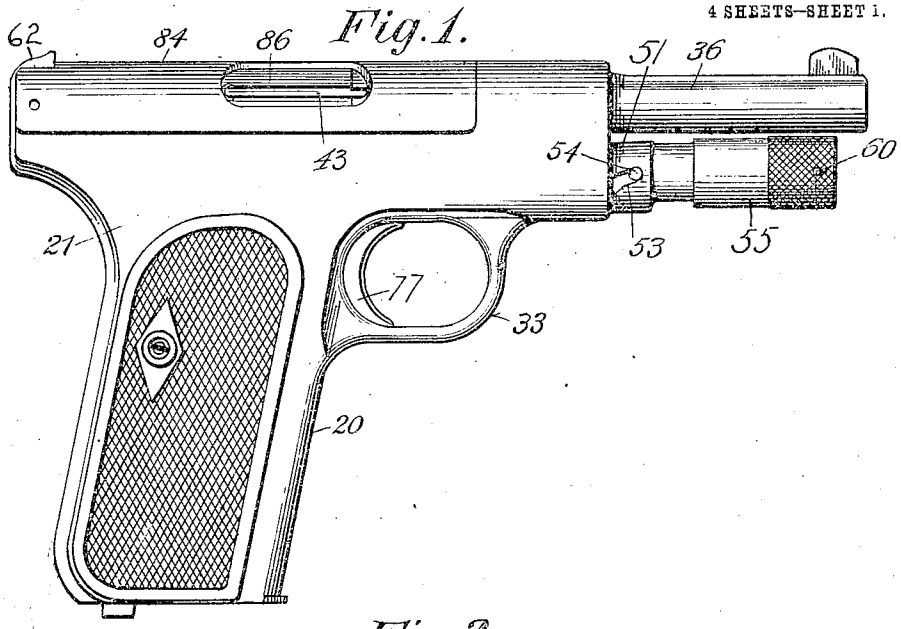
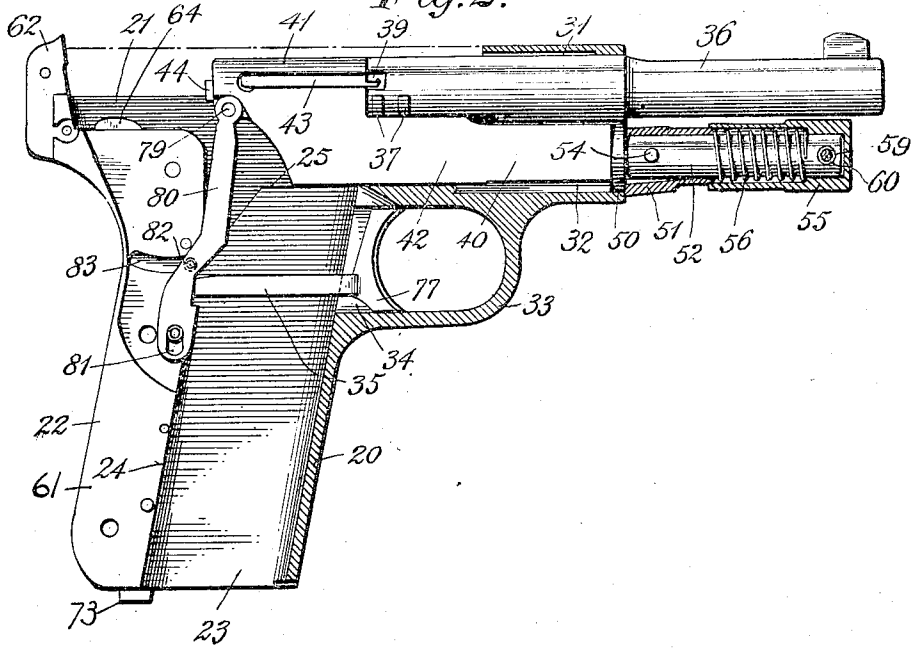


Fig. 2.



WITNESSES:

C. F. Schmeltz

L. E. Berkowitz.

INVENTOR.

Charles J. Jolidon,

BY

Arthur B. Jenkins,

ATTORNEY.

C. J. JOLIDON.

MAGAZINE FIREARM.

APPLICATION FILED JULY 6, 1909.

1,066,206. **Patented July 1, 1913.**

4 SHEETS—SHEET 2.

Fig. 3.

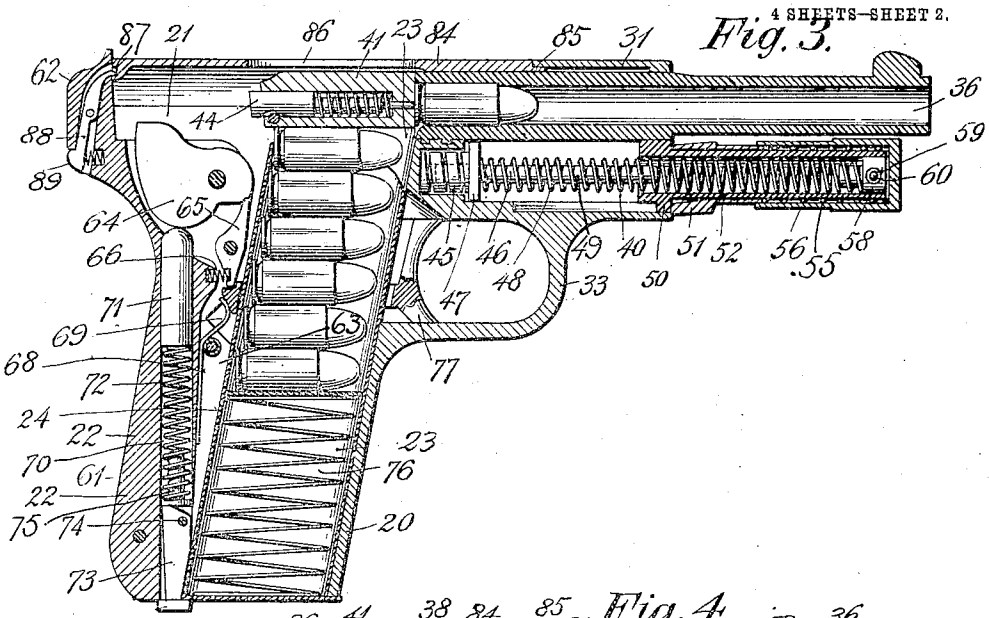


Fig. 4.

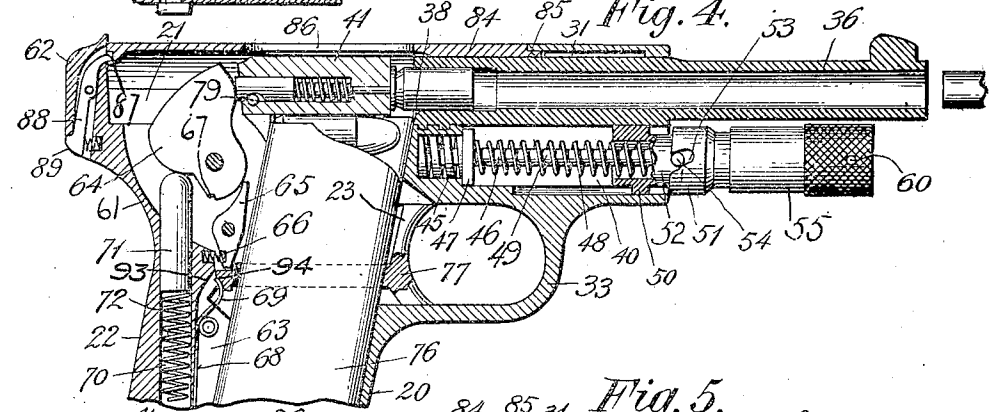
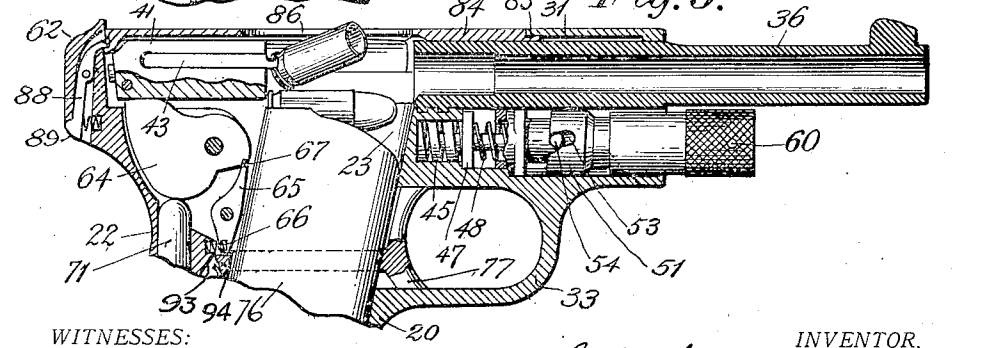


Fig. 5.



WITNESSES:

A. F. Schmuck

R. E. Berkovitch

INVENTOR.

Charles J. Jolidon,

BY

Arthur B. Jenkins,

ATTORNEY.

C. J. JOLIDON.

MAGAZINE FIREARM.

APPLICATION FILED JULY 6, 1909.

1,066,206.

Patented July 1, 1913.

4 SHEETS—SHEET 3.

Fig. 6.

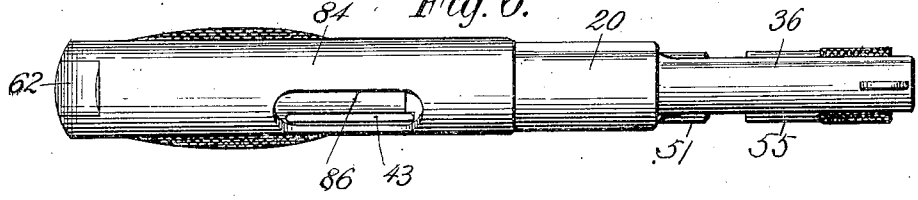


Fig. 7.

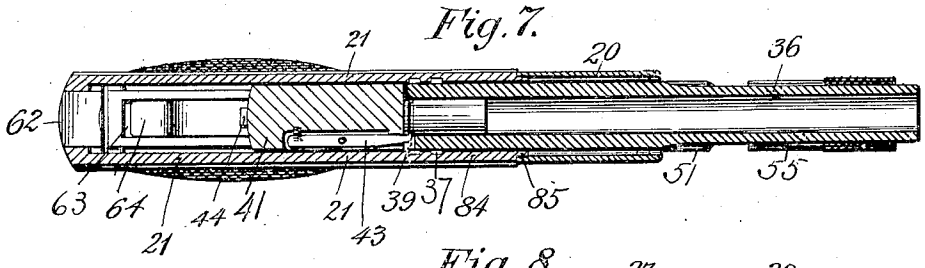


Fig. 8.

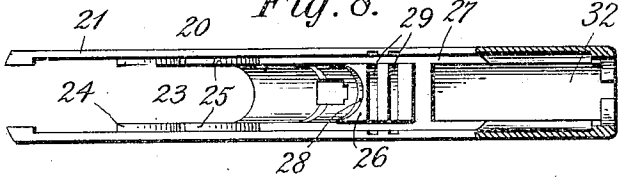


Fig. 10.

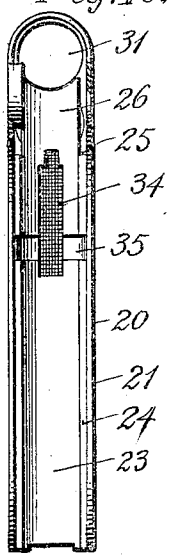


Fig. 9.

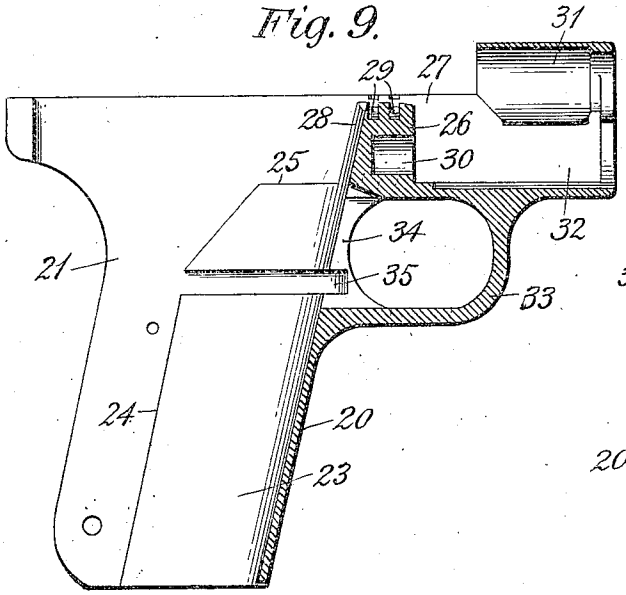
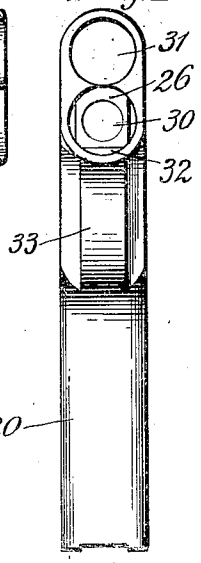


Fig. 11



WITNESSES:

C. F. Schmeck

R. E. Berkowitch

INVENTOR.

Charles J. Jolidon.

BY

Arthur B. Jenkins.

ATTORNEY.

C. J. JOLIDON.

MAGAZINE FIREARM.

APPLICATION FILED JULY 6, 1909.

1,066,206.

Patented July 1, 1913.

4 SHEETS—SHEET 4.

Fig. 14

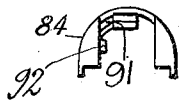


Fig. 12.

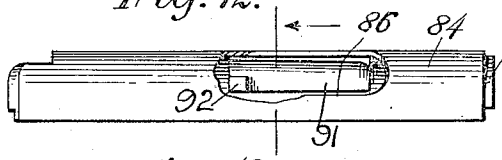


Fig. 15.

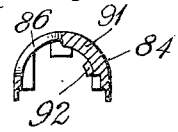


Fig. 13.

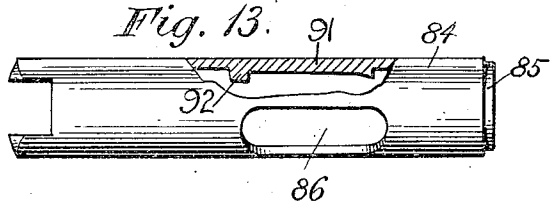


Fig. 16.

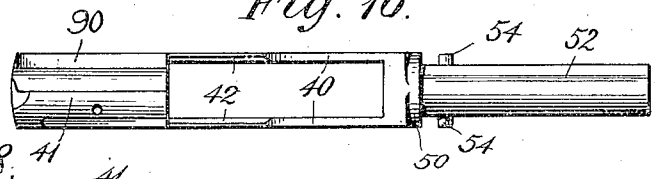


Fig. 18.

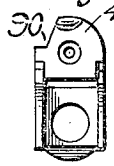


Fig. 17.

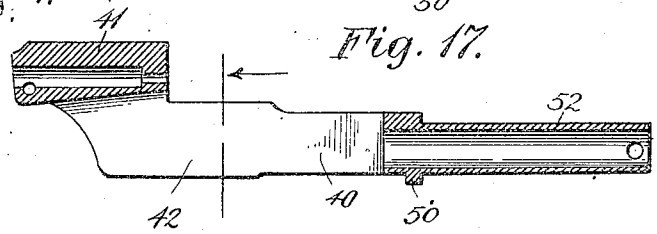


Fig. 19.

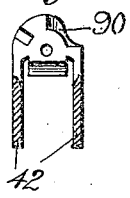


Fig. 20.

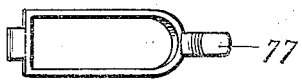
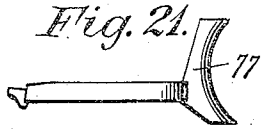


Fig. 21.



WITNESSES:

C. F. Schmeck

R. E. Berkowitch

INVENTOR.

Charles J. Jolidon.

BY

Arthur B. Jenkins.

ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES J. JOLIDON, OF HARTFORD, CONNECTICUT.

MAGAZINE-FIREARM.

1,066,206. Specification of Letters Patent. Patented July 1, 1913.

Application filed July 6, 1909. Serial No. 506,041.

To all whom it may concern:

Be it known that I, CHARLES J. JOLIDON, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented a new and Improved Magazine-Firearm, of which the following is a specification.

My invention relates more especially to the class of devices commonly known as automatic firearms which are self-acting to successively supply cartridges to the barrel, to set the hammer and to eject the shells therefrom, and the object of my invention is generally to provide a device of this class having numerous novel features of advantage and utility.

One form of device embodying my invention and in the construction and operation of which the objects sought may be attained is illustrated in the accompanying drawings, in which—

Figure 1 is a view in side elevation of my improved device. Fig. 2 is a side view partially in section. Fig. 3 is a view in central longitudinal section through the device. Fig. 4 is a view of the upper part of the device with parts cut in central longitudinal section and showing the relative position of the parts at an instant after discharge. Fig. 5 is a view similar to Fig. 4 but showing the relative position of the parts with the bolt moved back to its farthest extent. Fig. 6 is a top view. Fig. 7 is a view in horizontal section on plane passing through the center of the barrel. Fig. 8 is a view in horizontal section through the frame on plane passing through the center of the barrel. Fig. 9 is a view in vertical section through the frame. Fig. 10 is a rear view of the frame. Fig. 11 is a front view of the frame. Fig. 12 is a side view of the breech opening cover. Fig. 13 is a top view of the same partly in section. Fig. 14 is an end view. Fig. 15 is a view in cross-section on plane indicated by the broken line in Fig. 12. Fig. 16 is a top view of the breech bolt. Fig. 17 is a view in central longitudinal section through the breech bolt. Fig. 18 is an end view. Fig. 19 is a view in cross-section on plane denoted by the broken line in Fig. 17. Fig. 20 is a top view of the trigger. Fig. 21 is a side view of the same.

A firearm constructed in accordance with my invention embodies a structure which is extremely compact and the parts of which are so assembled and connected in groups that the device may be taken apart with little trouble, the parts constituting each group remaining intact when the device is thus taken apart.

Frame or case.—In the accompanying drawings the numeral 20 denotes the frame or case constructed in any desired manner and of any suitable material. It is suitably grooved, bored and otherwise formed to contain the different parts of the structure, this formation including side parts 21 between which a back piece 22 is secured, thus forming a magazine chamber 23. The side parts 21 have shoulders 24 formed on the inside thereof extending lengthwise of the handle and against which the back piece 22 is secured, and near the top of the side parts inside thereof other shoulders 25 are formed providing a portion of a slideway for a bolt to be hereinafter described. A projection 26 extends upward from the bottom of a recess 27 in the top of the frame, this recess also forming a part of the slideway for said bolt and the projection forming an anvil to hold the barrel. Spaces for the reception of said bolt are formed on opposite sides of this anvil between it and the side parts of the frame. The back of this anvil is grooved preferably circularly, as at 28, to receive the magazine, the top having a groove or grooves 29 to receive projections or ribs on the barrel and a buffer spring recess 30 extends into the anvil from the front thereof. The front part of the frame has a barrel opening 31 and a bolt opening 32. A trigger guard 33 is formed preferably integrally with the frame, a trigger opening 34 extending from within the trigger guard into the magazine chamber, trigger grooves 35 being formed on opposite sides of this opening to receive the trigger which slides therein.

Barrel.—The barrel 36 is of the usual tubular form of proper length and is constructed to fit within the barrel opening 31. A rib or ribs 37 is or are formed at the rear end of the barrel on the under side when the piece is properly assembled, these ribs fitting the grooves 29 in the anvil. In the preferred form of construction and as shown

herein these grooves extend half way around the barrel, the ends of the grooves terminating in a horizontal plane when the parts are properly assembled and the piece held with the axis of the barrel in a horizontal position and the frame vertical. By thus turning the barrel a half turn the ribs are disengaged from the grooves and the barrel may be moved with its rear end into the opening 31 or may be removed from the frame. The opening into the rear end of the barrel is cut away as at 38 at the bottom portion to facilitate the entry of cartridges into the barrel, and a recess 39 is formed in the side of the barrel for the reception of the end of an extractor. This recess also serves as an aid in removing the bolt, the parts being so compactly arranged that in taking apart the barrel must be moved with its rear end near the front of the opening in the frame and this recess located on the under side so that the upper curved portion of the forward end of the bolt may pass through the recess in drawing the bolt from the frame. The barrel may be provided with the usual sight, a detailed description of which is not deemed necessary herein.

Breech bolt.—The bolt 40 is of tubular construction, preferably round at its forward end and of a somewhat rectangular shape at its rear end. At the rear end is a raised projection 41 for the reception of a firing pin and extractor to be hereinafter described. This rectangularly shaped part of the bolt is also of frame shape having side parts 42 which fit and slide within the spaces between the anvil and the side parts of the frame. An extractor 43 is located in a groove in the raised projection 41, the front end of this extractor having a lip to engage the rim of a shell to withdraw it from the barrel, and a spring underlying the rear end of the extractor to hold this lip in engagement with the shell. A firing pin 44 is located in the raised projection 41, the rear end of the firing pin projecting to be struck by the hammer and the front end of the pin being located to strike the shell to explode the charge therein. This extractor and firing pin are of any usual and well-known construction and further and detailed description is therefore deemed unnecessary herein. A buffer spring 45 is located in the recess 30 in the anvil and a plunger 46 is seated against this spring, this plunger having a shoulder 47 to receive the bolt retracting spring 48. The plunger has a stem 49 projecting into the bolt retracting spring to prevent the same from buckling.

It is a well-known fact that in the class of automatic pistols and firearms generally called "blow-back" arms, in which the breech-bolt is yieldingly held and supported in its forward breech closing position by a spring, there exists a serious fault. This lies in the fact that the spring depended on for holding the breech-bolt closed is in the expanded condition at such time, and, therefore, weakest or under least tension at the time when it should be strongest in order to be best fitted to support the breech-bolt against yielding and moving rearward before the bullet has left the barrel and thereby relieve the pressure of the powder gases against the breech-bolt and within the barrel. Moreover, as the breech-bolt recoils it compresses the retracting spring and the same therefore becomes stronger as it is put under increased tension, and at the time when less strength or tension is required of it. In order to overcome this fault inherent to pistols of this class in which there is, in addition to the tension of the retracting spring, only the inertia of the breech-bolt to resist and delay its opening, the weight of the breech-bolt and of the parts moving with the same, and therefore the inertia, has in some cases been increased in order to positively insure that the bullet shall have passed from the barrel before the breech is opened to such a degree as to allow the powder gases to escape rearward from the barrel; but the additional weight of the moving parts required for this purpose is objectionable in pistols of small caliber, the weight of which should be as little as practicable. By the novel construction embodied in the mechanism described herein the same object is attained without increasing the weight of the moving parts. For this purpose I employ a breech-bolt retracting spring of a strength merely sufficient to return the parts to their forward position, and I reinforce this breech-bolt retracting spring by providing a strong spring so confined between abutments on the breech-bolt and on the stationary frame of the pistol, that its tension is exerted to yieldingly keep the breech-bolt in its closed firing position. The tension of this second spring is however thus exerted only during a small part of the first rearward movement of the breech-bolt, thereby delaying the opening of the breech-bolt long enough to insure that the bullet has left the barrel before the breech is opened to a degree to allow the gases in the barrel to escape rearward.

When the movement of the breech-bolt has been delayed sufficiently to positively insure that the bullet has left the barrel, the support of the spring against the frame is automatically removed, so that the spring is no longer confined by the abutment on the frame, but is at both ends supported by parts connected with the breech-bolt, in consequence of which the tension of the second or retarding spring is no longer added to that of the breech-bolt retracting spring, which then alone continues to oppose the

rearward movement of the breech-bolt, and the force which acts to move the breech-bolt forward is thus reduced at the time when the breech-bolt reaches its farthest movement rearward, and at which time this force should be the weakest.

At the end of the forward or closing movement under the energy stored in the reaction-spring the breech-bolt is returned to the firing position, and the contact of the second or retarding spring against an abutment on the frame is automatically restored, so that, on firing, the tension of this retarding spring is again added to that of the retracting spring in opposing each opening movement of the breech-bolt. My improved mechanism for effecting this result may be constructed as follows:

The breech bolt is located in the bolt opening 32, the forward end projecting beyond the frame and underlying the barrel. A portion of this bolt opening is rectangular in form to fit the rectangularly shaped part of the bolt, and the mouth of the opening is of circular form, fitting a round part 50 of the breech bolt. A cam lock 51, in the form of a sleeve fitting over the tubular part 52 of the breech bolt, is of a size to enable it to pass into the mouth of the bolt opening 32, and the opening through this sleeve is made larger on one side of the breech bolt than at the opposite side as clearly shown in Fig. 2 of the drawings, so that the sleeve has a tipping action on the tubular part of the breech bolt whereby said sleeve, in one position, engages the frame about said opening and is thus prevented from entry thereinto. A cam slot 53 extends through the wall of this sleeve, which slot receives a cam actuating pin 54 extending from the side of the tubular part of the breech bolt. A cap 55 fits over the end of the breech bolt, this cap being of a size to receive the end of the sleeve or cam lock 51. A breech bolt retarding spring 56 is located within this cap and is held thereby to thrust the cam lock against the end of the frame. The breech bolt retracting spring 48 is located within the tubular part 52 of the breech bolt, this spring encircling the stem 49 and being seated against a shoulder on the plunger 46. The opposite end of the spring receives a removable head 58 that is secured to the tubular part of the breech bolt as by means of a tubular pin 59 which receives a pin 60 for holding the cap 55 in place. It will thus be seen that the tubular pin 59 serves a double purpose, that of holding the head in place and also to receive the pin for holding the cap. It will be seen from this construction that when the gun is fired the breech-bolt is driven backward against the tension of both the retracting spring 48 and the retarding spring 56, since the end of the lock 51 rests against the frame and forms an abutment for the retarding spring 56 until said lock is moved to enter the opening in the frame, after which the only resistance to the movement of the breech-bolt is the force of the retracting spring 48. The retarding spring 56 is of such power that the backward movement of the breech-bolt is sufficiently retarded, prior to release of the cam lock 51, to enable the gases of explosion to practically expend their full force upon the projectile, the latter clearing the muzzle of the barrel and relieving the pressure therein just after enough force has been exerted upon the breech-bolt to move it backward to its full extent, this opening of the breech, however, not occurring at a time to allow the powder gases to escape rearward from the barrel.

Back piece.—A back piece 61 is formed to fit the groove between the side parts 21 of the frame and close the opening thereinto, this back piece as hereinbefore described resting against the shoulders 24. It has at its upper end an abutment 62 to receive the impact of the breech bolt in its backward movement. A groove 63 is formed in the front edge of this back piece in which a hammer 64 and a sear 65 are pivoted. A sear spring 66 holds the sear with its end firmly in engagement with the notch 67 in the hammer. A trigger spring 68 is also secured in this groove, its upper end being bent as at 69 to form a curved part to contact with the end of the trigger, to be hereinafter described. A hole 70 extends depthwise through this back piece just beyond the groove 63 and a plunger 71 is thrust by a main spring 72 against the back of the hammer, as shown in Fig. 3 of the drawings. The lower end of this hole 70 is closed by a magazine catch 73 pivotally mounted as at 74 and having a tip 75 extending into the main spring. This catch thus serves as a seat for the main spring and the latter also serves a double function, that of throwing the hammer against the firing bolt and also to maintain the magazine catch in position to hold the magazine 76 in place. The trigger 77 is mounted in the opening 34 and has a loop preferably integrally formed therewith, the side parts of this loop sliding freely in the trigger grooves 35. This loop is of a shape to admit the magazine 76 which is passed through the loop when the magazine is placed in position. The opening in the loop is of a size to permit the necessary movement of the trigger to disengage the sear-tail from the hammer. A trigger disengaging cam 93 is formed on the inner edge of the back-piece in position to engage the end 94 of the trigger to move it downward, thus disengaging the trigger and sear after the latter has been released from the hammer. The sear is thus free to move into position to engage the hammer and hold it even though pressure on the trigger may

not have been released, and this prevents inadvertent discharge of the firearm.

A retaining pin 79 for the firing pin extends through the breech bolt, lying in a recess in the firing pin to allow the proper movement thereof to explode the cartridge. This pin extends on opposite sides of the breech bolt, and links 80 are pivotally mounted upon the projecting ends of this pin. These links extend downward and are provided with slots 81 at their lower ends and intermediate their ends with guide pins 82. These guide pins are located in guide grooves 83 in the back-piece 22 and the links prevent any upward movement of the breech bolt which it will thus be seen is guided in its sliding movement by a pivotal connection, which, however, is so arranged that the breech bolt is permitted to slide in a straight plane.

A cover 84 closes the opening in the top of the frame, this cover having at its front end a lip 85 resting within the space between the barrel and the part containing the barrel opening 31, the lip in fact resting within said barrel opening. This cover has a shell opening 86 through which the shells are ejected. At the rear end of the cover a lock recess 87 is formed within which the end of a locking lever 88 engages, the end of this lever being provided with a finger piece 89 by means of which the lever is operated to disengage the lever from the cover and allow the latter to be removed.

The projection on the breech bolt has a recess 90 within which is located a pad 91 from the cover, and an ejecting knob 92 projects from said pad into said recess. These parts coöperate to extract the shell, which is drawn from the barrel by the extractor as the breech bolt moves forward, the edge of the shell projecting beyond the recess 90. As the breech bolt moves backward one side of the edge of the shell strikes the knob holding this edge against movement while the extractor continuing to move with the breech bolt, tips the shell and throws it through the opening, thus ejecting it.

The operation of the firearm, briefly stated, is as follows: The parts being in the position shown in Fig. 3 the trigger being moved backward, disengages the sear from the hammer and the latter is thrown forward under the force of the main spring 72 striking the firing pin 44, forcing it against the cartridge and exploding the latter. The gases of explosion expanding behind the bullet act upon the breech-bolt tending to force it backward against the tension of the bolt retracting spring 48 and the retarding spring 56. The latter being of sufficient strength retards the movement of the breech bolt so that the breech is not opened sufficiently to permit escape of the powder gases until the bullet has passed beyond the muzzle of the barrel. The slight rearward movement of the breech-bolt causes the cam actuating pin 54 to move the cam lock 51 into registering position with the mouth of the bolt opening 32. When the cam is in position to enter the mouth of the opening the resistance of the spring 56 is removed and the breech-bolt moves backward quite freely, resisted only by the force of the bolt retracting spring 48. As the breech-bolt moves backward the extractor 43 engaging the lip on the end of the cartridge shell extracts it from the opening in the barrel, and the end of the shell striking the knob 92, a continued backward movement of the extractor tips the shell as shown in Fig. 5, ejecting it through the opening 86 which has been uncovered in the backward movement of the breech bolt. An inadvertent repetition of the discharge is prevented by the mechanism hereinbefore described.

I claim—

1. A frame for a firearm including side parts with an opening along the rear edge, a back-piece removably secured in said opening and forming the back wall of a magazine chamber, a barrel mounted on the frame, firing mechanism including a sear mounted on said back-piece, said back-piece also having a cam, and a trigger slidably mounted in the frame to engage said sear and also said cam to disengage the trigger from the sear.

2. A frame for a firearm including a handle forming a magazine chamber, a plunger located in the handle, mechanism connected to be operated by said plunger, a spring underlying the plunger, a magazine located in the magazine chamber, a magazine catch to hold the magazine, said spring pressing against the catch to hold it in engagement with the magazine.

3. A frame for a firearm including a handle forming a magazine chamber extending lengthwise therein and an opening extending lengthwise through the back wall of said chamber, a plunger located in said chamber, a spring underlying said plunger, a magazine located in said chamber, a magazine catch to hold the magazine, said catch also serving as an abutment for said spring, and mechanism to complete the operative parts of the firearm.

4. A frame for a firearm including a handle forming a magazine chamber, a hammer pivotally mounted in the frame, means for exerting force upon the hammer, a sear to hold the hammer against movement, a cam projection located at the back of the magazine chamber, a spring secured to the back of said chamber, and a trigger slidably mounted in the frame and arranged to engage said sear and said spring, and also to engage said projection to disengage it from the sear.

5. A frame for a firearm including side parts with grooves therein, a back-piece closing the opening along the edge and forming one wall of a magazine chamber, a hammer pivotally mounted in the back-piece, means for exerting force upon the hammer, a sear to hold the hammer against movement, a cam projection located on the back-piece, a spring secured to the back-piece, and a trigger slidably mounted in said grooves and arranged to engage said sear and said spring, said trigger also arranged to engage said projection to disconnect it from the sear.

6. A frame for a firearm including side parts with grooves therein, a back-piece closing the opening along the edge between said side pieces and forming one wall of a magazine chamber, a hammer pivotally mounted on the back-piece, means for exerting force upon the hammer, a sear pivotally mounted on the back-piece to hold the hammer, a spring secured to the back-piece, a projection from said back-piece, a trigger slidably mounted in said grooves and having a loop through which the magazine passes, said trigger being movable to engage the sear and spring and also to engage said projection to disengage it from the sear.

7. In a firing mechanism for a firearm including a hammer with means for operating it, said operating means including a plunger to engage said hammer, a spring exerting force upon said plunger, and a magazine catch against which said spring thrusts to hold it in engagement with the magazine.

8. In a firing mechanism for a firearm, a hammer with means for operating it, said operating means including a plunger to engage said hammer, a spiral spring exerting force against the plunger, and a magazine catch also receiving the thrust of said spring to hold it in engagement with the magazine.

9. In a firearm, a piece removably secured to the frame, a hole extending lengthwise through said piece, a hammer pivotally mounted in said piece, means for operating the hammer, a spiral spring located in said hole, and thrusting against said means, and a magazine catch upon which said spring is seated, said catch operating to hold the magazine in position.

10. A frame for a firearm, firing mechanism mounted therein and including a breech block slidable along the frame, links pivotally connecting the breech block with the frame, guide grooves, studs upon the links engaging said grooves, and means for operating the firing mechanism.

11. A frame for a firearm, firing mechanism mounted in the frame and including a breech block slidably mounted thereon, links pivotally connecting the breech block with the frame and having enlarged pivot openings at their ends, curved guide grooves, studs from said links engaging said grooves, and means for operating the firing mechanism.

12. A frame for a firearm, firing mechanism including a breech bolt movable on the frame to be operated by the gases of explosion, means for yieldingly resisting movement of the breech-bolt, means for operating the firing mechanism, a movable lock positively engaging said frame and connected with the breech bolt, and a second means to yieldingly resist the backward movement of the breech-bolt.

13. A frame for a firearm having an opening, firing mechanism mounted on the frame and including a movable breech slide, means for operating the firing mechanism, a sleeve lock surrounding the forward end of the breech slide and of a size to pass into said opening in the frame, and connections between the breech slide and sleeve lock to disengage the latter from the frame to permit it to pass into said opening.

14. A frame having an opening for a breech slide, firing mechanism mounted in the frame, means for operating the firing mechanism, a sleeve surrounding the breech slide and arranged to pass into said opening, and a cam connection between the breech slide and sleeve to disengage the latter from the frame and permit it to pass into said opening.

15. A frame for a firearm, firing mechanism, including a breech slide projecting through an opening in the frame, means for operating the firing mechanism, a sleeve surrounding the projecting part of the breech slide but of a size to pass into said opening, said sleeve having a cam slot and a pin projecting from said breech slide into said cam slot to disengage the sleeve from the edge of the opening.

16. A frame for a firearm having an opening, a breech slide projecting from said opening, firing mechanism mounted in the frame, means for operating the firing mechanism, a sleeve lock having a lateral movement on said projecting breech slide and arranged to engage the edge of said opening, a cap fitting over the projecting part of the breech slide, a spring within said cap thrusting against the sleeve lock, and connections between the breech slide and sleeve lock for disengaging the latter from the edge of said opening.

17. A frame for a firearm having side parts forming a recess, an anvil projecting from a wall of a recess in the frame with openings between the anvil and each side part, firing mechanism mounted in the frame and including a breech slide having side parts located on each side of said anvil, a barrel removably held by said anvil, and means for operating the firing mechanism.

18. A frame for a firearm having a recess,

firing mechanism mounted in the frame, means for operating the firing mechanism, an anvil projecting from a wall of the recess in the frame, a barrel removably engaging said anvil, said anvil having a recess for a buffer spring, a buffer spring located in said anvil, a breech slide included in the firing mechanism, said breech slide projecting beyond the end of the frame, means for temporarily holding the breech slide against movement under the influence of the exploding gases, and means for causing the buffer spring to receive the shock of the breech slide in its backward movement.

19. A frame for a firearm, firing mechanism mounted in the frame, means for operating the firing mechanism, an anvil projecting from a wall of a recess in the frame, a barrel removably held by said anvil, a breech bolt included in the firing mechanism, a buffer spring mounted in a recess in the edge of the anvil, a plunger seated against said buffer spring, a breech bolt retracting spring mounted on said plunger, and exerting force upon the breech bolt, a lock to retard the breech bolt in its backward movement under the forces of explosion, and means for operating said lock.

20. A frame for a firearm, firing mechanism mounted in the frame, means for operating the firing mechanism, a breech bolt included in the firing mechanism and projecting beyond the front end of the frame, a lock to retard the breech block in its backward movement under the forces of explosion, means for operating said lock, a breech bolt retracting spring, a tubular pin to hold said retracting spring, a spring thrusting against said lock, a cap to hold said spring, and a pin extending through said cap and through said tubular pin to hold the cap in place.

21. A frame for a firearm, firing mechanism mounted in the frame, means for operating the firing mechanism, a breech bolt included in the firing mechanism, and with its front tubular end projecting beyond the front end of the frame, a retracting spring located in said tubular portion of the breech bolt, a locking sleeve mounted in said tubular portion, means for operating said lock, a tubular pin to hold said retracting spring, a spring to thrust against said lock, a cap fitted over the tubular end of the breech bolt to hold said latter spring, and a pin extending through the cap and through said tubular pin to hold said cap in place.

22. In an automatic firearm, a frame, a breech-bolt sliding in the frame, a retracting-spring supported between the frame and the breech-bolt for yieldingly holding said breech-bolt in firing position, a second spring supported between the frame and the breech bolt independent of but reinforcing said retracting-spring and automatic means for removing and replacing the support on the frame of said second spring, whereby said spring is caused to reinforce the retracting-spring only while the breech-bolt is in the closed position and during the beginning of the opening movement of the same.

23. In an automatic firearm, a frame, a barrel carried by the frame, a breech-bolt sliding in the frame for opening and closing the barrel and having a lengthwise extension, a retracting-spring supported between the frame and said extension for yieldingly holding the breech-bolt in firing position, a second spring supported between a fixed abutment and a movable abutment on said extension, and means operated by the movements of the breech-bolt for holding said movable abutment in position to be supported by the frame, and for releasing said abutment from the frame and adapting it for sliding in the frame, whereby the second spring reinforces the retracting-spring only when the breech-bolt is in firing position and during the first part of the recoil of the same.

24. In an automatic firearm, a frame, a barrel carried by the frame, a breech-bolt sliding in the frame for opening and closing the barrel, and having a forward extension alongside the barrel, a retracting-spring supported between the frame and said extension for yieldingly holding said breech-bolt in firing position, a second spring supported between a fixed abutment and a movable abutment on said extension, and operative means carried by said extension for holding said movable abutment in position to be supported by said frame and for releasing said abutment from the frame and adapting it for sliding in said frame, whereby said second spring reinforces the retracting-spring only while the breech-bolt is in firing position and during the first part of the recoil of the same.

25. In an automatic firearm, a frame, firing mechanism mounted in the frame and including a sliding breech-bolt, a plural number of springs mounted to retard the opening movement of the breech-bolt, and means acting during the opening movement of the breech-bolt to remove a portion of tension of said springs as an element in opposing said opening movement.

26. A frame for a firearm, a barrel fixed in the frame, firing mechanism including a breech-bolt movable on the frame to be operated by the gases of explosion, means for yieldingly resisting the operation of the breech-bolt, means for operating the firing mechanism, and a movable sleeve positively engaging said frame and connected with the breech-bolt to yieldingly resist its rearward movement.

27. A frame for a firearm, a barrel fixed

in the frame, firing mechanism including a movable breech-bolt, means for operating the firing mechanism, a movable sleeve positively engaging said frame, an elastic means between said sleeve and said breech-bolt to yieldingly resist the movement of said breech-bolt, and connections between said sleeve and said breech-bolt for disengaging the sleeve from the frame.

CHARLES J. JOLIDON.

Witnesses:
ARTHUR B. JENKINS,
LENA E. BERKOVITCH.