

B. H. SAVAGE.

FIREARM.

APPLICATION FILED JUNE 6, 1910.

Patented May 28, 1912.

3 SHEETS—SHEET 1.

1,027,773.

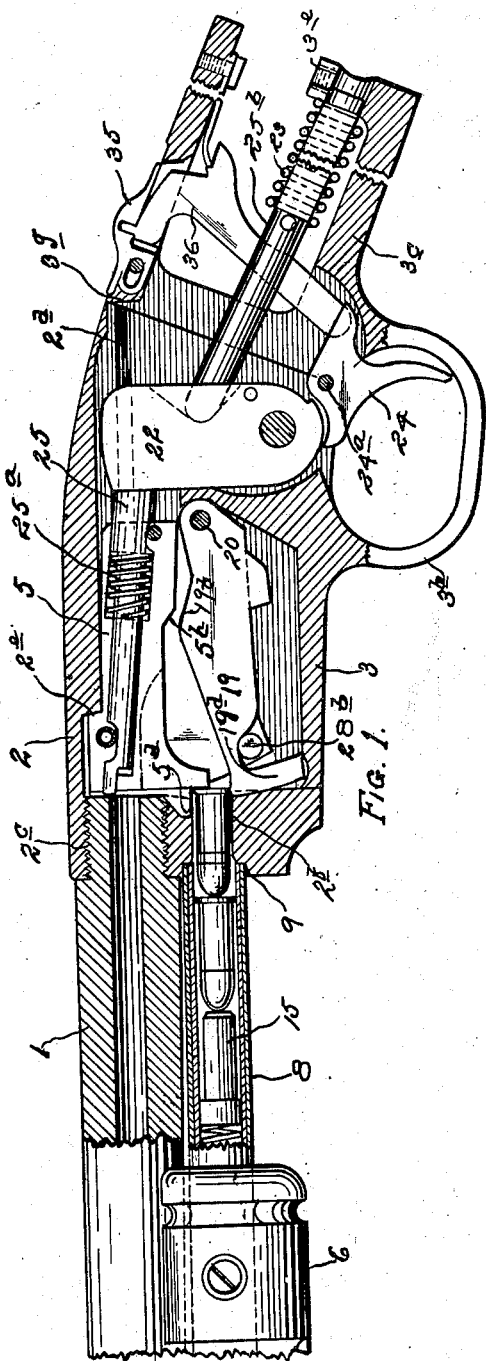


FIG. 1.

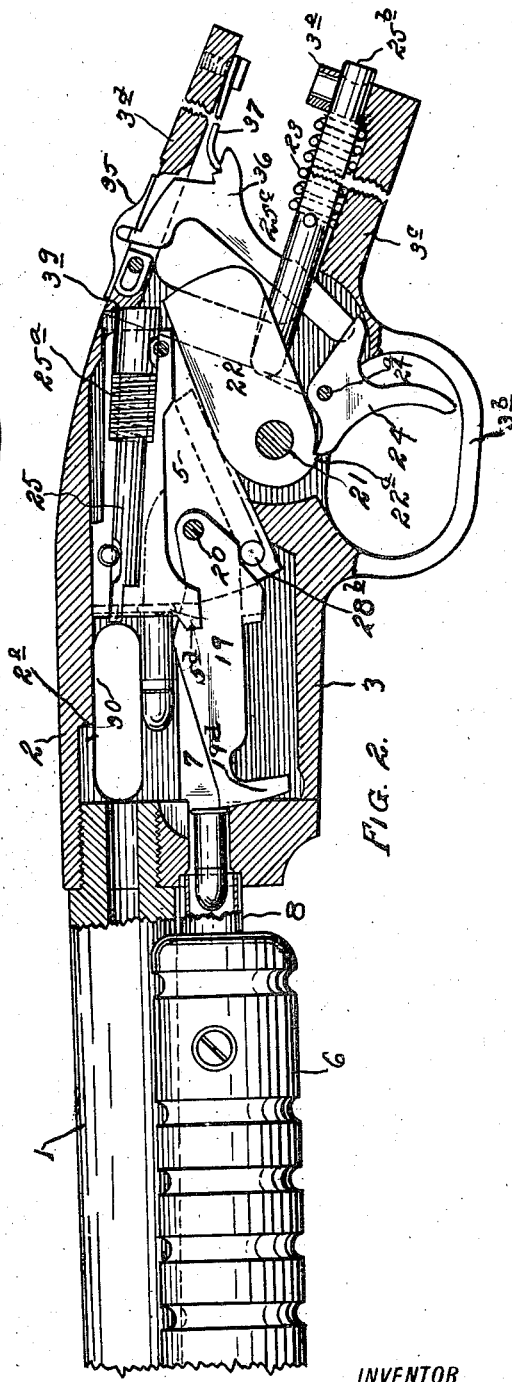


FIG. 2.

WITNESSES:

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[Signature]

INVENTOR

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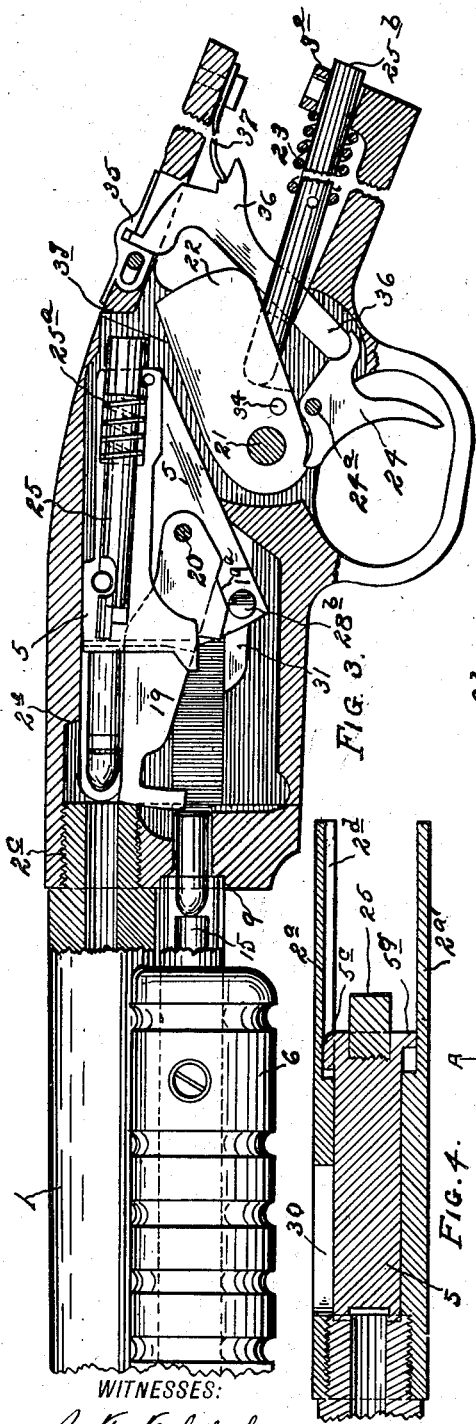
BY

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1,027,773.

Patented May 28, 1912.

3 SHEETS—SHEET 2.



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B. H. SAVAGE.

FIREARM.

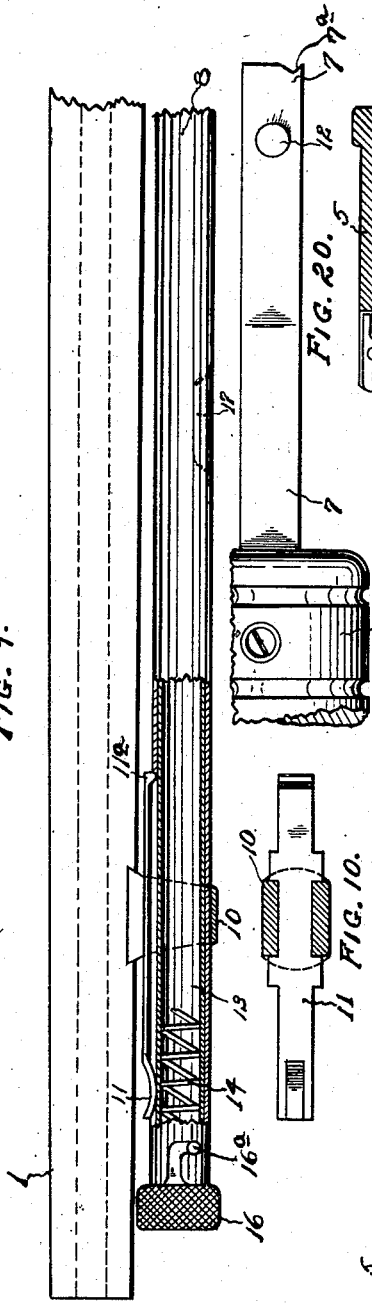
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3 SHEETS—SHEET 3.

FIG. 9.



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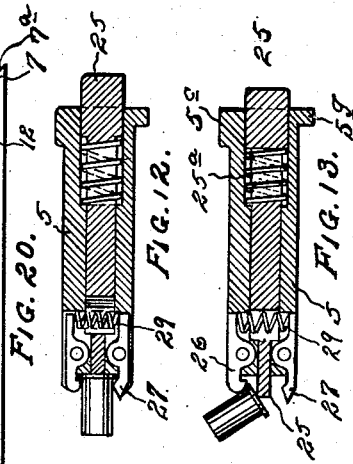


FIG. 10.

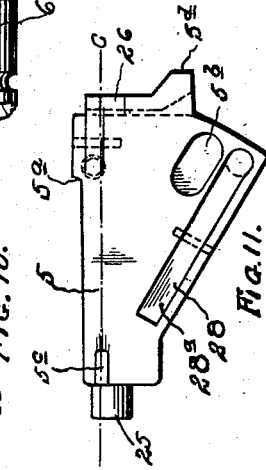


FIG. 11.

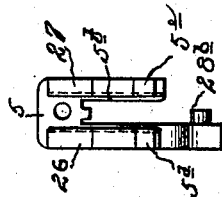


FIG. 12.

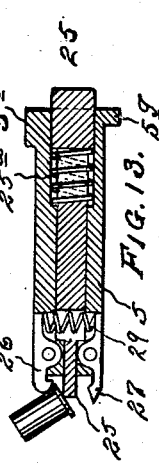


FIG. 13.

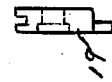


FIG. 14.



FIG. 15.



FIG. 16.



FIG. 17.

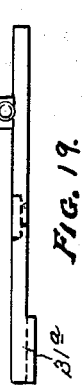


FIG. 18.

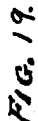


FIG. 19.

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FIREARM.

1,027,773.

Specification of Letters Patent.

Patented May 28, 1912.

Application filed June 6, 1910. Serial No. 565,221.

To all whom it may concern:

Be it known that I, BASIL H. SAVAGE, a citizen of the United States, residing at Duarte, in the county of Los Angeles and State of California, have invented new and useful Improvements in Firearms, of which the following is a specification.

This invention relates to firearms; and it has for its object to provide improvements in construction and organization of the parts, elements and features of firearms, of the repeating type, which will be superior in point of relative simplicity and inexpensiveness of construction, positiveness of action, and convenience in assembling and disconnection, and facility of control of working conditions; and which will be generally superior in efficiency and serviceability.

With the above and other objects in view, the invention consists in the provision, formation, construction, combination, association and relative arrangement of parts, members and features, all as hereinafter described, shown in the drawings and finally pointed out in claims.

Particular features attaching to the present invention are as follows:—

According to the present invention, I provide a magazine comprising telescoping tubes, suitably supported beneath the barrel, and in combination with which is employed a tension device acting upon the inner tube to maintain it in position of adjustment with relation to the outer tube, and also acting upon the outer tube to prevent its movement when the tubes are relatively adjusted for the purpose of filling the inner tube.

The breech bolt which I employ is suitably mounted for longitudinal and vertical movement, and is provided at its forward face with a T-slot traversed by the head of the cartridge, under actuation of the carrier, the forward end of the breech bolt acting as a cartridge stop when the carrier is in the extreme lowered position. The forward end of the carrier likewise acts as a cartridge stop during the major portion of the operation of the breech bolt. At the upper end of the T-slot are provided spaced extractor and ejector jaws, which are spring-actuated, and one of which, the ejector jaw, is provided with a modification of the jaw construction which permits of initial release of one side of the shell head, in the ejecting operation, so that the firing pin may cause

lateral ejection of the shell. The forward face of the breech bolt, at the lower end of the T-slot, is provided with forwardly directed extensions which hold the cartridges against improper displacement from the magazine tube, prior to such upward movement of the forward end of the breech bolt as shall permit the next succeeding cartridge to be supplied by the magazine to come into position for traverse of the T-slot.

The carrier is in part controlled by cam action in connection with the breech bolt, and in part by a carrier dog pivotally mounted upon the breech bolt and having an extension or stud which co-acts with the

The breech bolt is accommodated and guided between wall portions of one portion of the receiver, which comprises two opposed spaced portions connected by a transverse portion, and the other portion of the receiver fits beneath one of said opposed spaced portions of the first-named receiver portion. The two receiver portions, and the connected parts and adjuncts, are detachably connected, in assembling the firearm, by a take-down screw which acts as the pivotal bearing for the hammer.

The breech bolt is guided between the above-mentioned parts of one of the receiver portions by a stud and a guide projecting oppositely therefrom and jointly holding the breech bolt in alinement in its reciprocating movement. When the breech bolt is retracted to a predetermined extent, the said guide is freed to permit lateral movement of the breech bolt, whereby the same may be freed from the action bar at a point beyond its normal extreme rearward movement.

I further provide an action bar lock which is intermediately pivotally mounted, and the forward end of which co-acts with a notch in the rearward end of the action bar. Said action bar lock is normally elevated at its forward end by a coil spring housed in a button extending through a suitable opening at one side of the receiver. The rear end of the action bar lock co-acts with a pin projecting laterally from the hammer, so that the release of the hammer unlocks the action bar through the impingement of the pin upon the rearward end of the action bar lock.

In the drawings:—Figure 1 is a longi-

tudinal sectional view of a portion of a fire-
 arm embodying the invention, the plane of
 section being taken through the receiver and
 adjacent parts and adjunctive features, the
 5 parts and elements being shown in the posi-
 tions assumed immediately subsequent to ex-
 plosion of the cartridge; Fig. 2 is a similar
 longitudinal sectional view, the breech bolt
 being in open or completely retracted posi-
 10 tion, and the other parts being shown in the
 conditions and positions accompanying such
 adjustment and location of the breech bolt;
 Fig. 3 is a still further similar longitudinal
 sectional view with the breech bolt still in
 15 open and partially retracted position, but
 after slight advance of the same accom-
 panied by operation or vertical movement
 of the cartridge carrier; Fig. 4 is a longi-
 tudinal sectional view taken upon the line
 20 B—B, Fig. 5; Fig. 5 is a side elevation of
 the barrel portion or member of the receiver,
 showing the breech bolt accommodated and
 guided and confined within and by the said
 barrel portion; Fig. 6 is a side elevation of
 25 the stock portion or member of the receiver,
 which same carries and accommodates the
 firing mechanism, including the trigger and
 hammer and adjunctive features; Fig. 7 is
 a front end view of the stock portion of the
 30 receiver shown in Fig. 6, together with the
 mechanism accommodated thereby; Fig. 8
 is a vertical transverse sectional view, taken
 upon the line A—A, Fig. 5, and looking in
 the direction of the appended arrow; Fig. 9
 35 is a longitudinal view, partly broken away,
 partly in full lines and partly in section, of
 the forward end portion of the barrel and
 of the tubular magazine, including the for-
 ward mounting of the magazine; Fig. 10 is
 40 a bottom face view of a magazine stop and
 friction means acting with relation to the
 tubular magazine, illustrating sectionally a
 portion of the forward magazine mount;
 Fig. 11 is a detail side elevation of the
 45 breech bolt shown in the other figures, to-
 gether with the carrier dog which acts in
 connection with the carrier shown in the
 other figures, the firing pin, extractor and
 other adjunctive features; the showing in
 50 this figure being reversed end for end with
 relation to the positions indicated in the
 other figures; Figs. 12 and 13 are detail lon-
 gitudinal sectional views taken upon the line
 55 C—C, through the breech bolt and adjuncts
 thereof, illustrating particularly the action
 of the extractor; the parts in these figures
 being in positions reversed with relation to
 those indicated in Fig. 11; Fig. 14 is a front
 60 end elevation of the breech bolt showing a
 vertically slotted formation therein formed
 and provided for accommodation of the car-
 rier and the stud of the carrier dog, the lat-
 ter being shown in normal position; Fig. 15
 65 is a side elevation of the carrier in detached
 position; Fig. 16 is a rear end view of the

carrier; Fig. 17 is a bottom plan view of the
 carrier; Fig. 18 is a side elevation of the
 action bar lock reversed end for end with
 relation to the showing in the other figures,
 and showing a particular construction of
 70 tension means acting in connection there-
 with; Fig. 19 is a bottom plan view of the
 action bar lock; and, Fig. 20 is a fragmen-
 tary side elevation of the sliding grip and of
 the action bar connected therewith, and
 75 showing the action bar stud.

Corresponding parts in all the figures are
 denoted by the same reference characters.

Referring with particularity to the draw-
 ings, 1 designates the barrel of the firearm, 80
 which in the present illustration is shown as
 a small caliber repeating rifle; 2 designates
 the barrel portion of the receiver to which
 the barrel 1 is screwed; 3 designates the
 stock portion of the receiver and 4 design- 85
 ates the butt stock. The barrel portion 2
 of the receiver consists in the main of the
 side walls 2^a and 2^{a'}, and a top portion or
 wall 2^b; the same inclosing a space within
 which the breech bolt is guided and confined. 90
 In addition to these features, the bar-
 rel portion 2 of the receiver is provided with
 a screw threaded opening 2^c at its forward
 portion, permitting threaded connection of
 the barrel therewith; and is further pro- 95
 vided with another opening 9 permitting
 connection of the magazine, beneath the bar-
 rel. The stock portion 3 of the receiver con-
 sists in the main of the side wall 3^a, the
 trigger guard 3^b and the tangs 3^c and 3^d, a 100
 lower and an upper respectively. The two
 parts of the receiver 2 and 3 together inclose
 the chamber which accommodates and con-
 tains the major portion of the working con-
 struction and the features thereof. 105

5 designates the breech bolt, which is pro-
 vided at its upper forward portion with an
 upwardly extending projection forming a
 locking shoulder 5^a. This shoulder is adapt- 110
 ed to engage with the recoil shoulder 2^e in the
 upper portion of the receiver 2, or upon the
 under surface of the receiver portion 2^b.
 The recoil shoulder 2^e forms the rear wall
 of a recess cut in the top receiver portion 2^b,
 adjacent to the rear end of the barrel. For 115
 engaging the locking shoulder 5^a on the
 breech bolt with the shoulder 2^e in the re-
 ceiver, and disengaging the former from the
 latter, there is provided a reciprocating
 handle or grip 6 which is attached to and
 120 adapted to reciprocate forwardly and rear-
 wardly the action bar 7, such grip or handle
 being mounted for reciprocation exteriorly
 of the magazine 8. The tubular magazine 8
 is fitted at its rearward end into the recess 125
 9 within the forward portion of the barrel
 portion 2 of the receiver; and the forward end
 of the tubular magazine 8 is supported by
 the loop, holder, or magazine band 10 which
 depends from the barrel and is firmly at- 130

tached thereto as clearly shown in Fig. 9. The magazine tube is held firmly against longitudinal movement by the combined stop spring and friction spring 11, the action of which will be hereinafter defined.

The slide grip or handle 6, the action bar 7 and a stud 12 fixed on the inner side face of the action bar, constitute means to operate the breech bolt vertically and longitudinally, in the manner hereinafter described.

The magazine contains the usual inner tube 13, with the coil spring 14 acting upon the follower 15 therein, in the usual manner, the coil spring and follower being both retained in the magazine tube by a forward end plug 16, which latter, together with the inner tube and attendant parts are adapted to be released to allow the inner tube 13, together with the spring and follower, to be forwardly withdrawn and held in such position of forward withdrawal by the spring 11 which impinges upon the inner tube 13. This provision is made in order to permit the magazine inner tube to be loaded in the usual manner through a suitable opening at the point 17 designated in Fig. 9, in the outer magazine tube 8. The spring 11 not only holds the inner tube 13 in its position of forward withdrawal, so that it may be loaded through the opening at the point 17; but said spring 11, through a detent 11^a formed at the inner end thereof, and co-acting with the forward end of the magazine tube 8, prevents forward movement of said magazine tube simultaneously with the forward movement of the inner tube, to the end that the inner end of the inner tube may be properly disposed for loading through the opening at 17 in the outer tube. The spring 11 also supplements the action of a bayonet joint 16^a whereby the plug 16 is connected detachably with the outer end of the magazine tube 8.

The breech bolt 5 is provided at its right-hand side near its forward end with a recess 5^b inclined downwardly with relation to the longitudinal axis of the breech bolt; said recess being formed and adapted to receive the projection or stud 12 on the action bar 7; and said recess 5^b being elongated to permit movement of the stud 12 therein, for the purpose hereinafter stated. The action bar 7 is received in a groove 2^a in the inner face of the receiver portion 2^a, and is adapted to be reciprocated longitudinally therein by means of the slidable grip or handle 6. The breech bolt 5 is guided on the stud 5^c at its rearward upper end portion, to allow longitudinal movement within a suitable groove 2^d recessed in the inner face of the receiver portion 2^a above the groove 2^b; and is also provided with the projection 5^e directly opposite the stud 5^c, which is adapted to prevent lateral movement of the breech bolt in its normal rearward movement,

through the chamber in the receiver 2 within which the breech bolt travels, and heretofore defined. In its forward reciprocating movement, the breech bolt is held at its forward end against the natural tendency to rise, due to the inclination of the recess 5^b which receives the action bar stud 12, by the upper portion of the breech bolt forward of the locking shoulder 5^a slidably engaging the major portion of the under face of the receiver portion 2^b, until such forward top portion passes the recoil shoulder 2^c. In its reciprocating movement, the breech bolt is held between the side walls 2^a and 2^{a'} of the receiver, and is supported by the action bar stud 12 and by the stud 5^c on the breech bolt.

The front end face of the breech bolt is vertically slotted to produce lateral parallel extensions 5^d and 5^e providing a passage for the vertically swinging forward end of the cartridge carrier 19. The spaced extensions 5^d and 5^e act to hold the column of cartridges against the action of the spring 14 in the magazine tube, upon the advance of the breech bolt, and the rise of the same, until said extensions slip over the rearmost cartridge in the magazine, so that the head of said cartridge may come into contact with the forward face of the breech bolt at the lower end of a T-slot 5^f. This prevents a double feed of cartridges, in case an incomplete breeching movement of the breech bolt were caused, which double feed would free such cartridges as did not come into position at the lower end of the T-slot, from any control, tending to jam the working parts. The front portion of the breech bolt, just rearward of the forward faces of the extensions 5^d and 5^e, is provided with the vertical T-slot 5^f formed with lipped edges forming channels receiving the head of the cartridge at opposite sides thereof; and when the breech bolt is in its forward elevated and locked position, the lower opening of the vertical T-slot 5^f is adapted to register above the opening 2^f in the receiver through which the cartridge is fed rearwardly to the receiver from the magazine. Upon the descent of the breech bolt, the head of the cartridge enters the T-slot rearwardly of the lipped edges thereof, and is thus gripped by the breech bolt for positive withdrawal from the magazine tube. The upper edge of the carrier 19, in its normal lower position, is inclined with respect to the path of movement of the action bar; so that as the breech bolt moves rearwardly the rear cartridge in the magazine, namely the cartridge next to be exploded, rides up this inclined upper portion of the carrier and is moved into the position shown in Fig. 2, while the head of the cartridge is retained in the T-slot 5^f by the lipped edges thereof.

The carrier 19 is hinged near its rearward end, by means of a pivot screw 20

seated in the vertical wall 3^a of the stock portion of the receiver. Mounted in the stock portion 3 of the receiver is a laterally movable part which I will term the take-down screw, designated at 21, which is adapted to hold the receiver parts in assembled relation. On this same part 21 is also mounted the hammer 22 which is adapted and arranged to be actuated by the spring 23 coiled around a spindle 25^b mounted to slide freely through an eye in a rearward upward projection 3^c of the lower tang 3^c of the stock portion of the receiver; said spindle being adapted and arranged to engage at its forward end with a recess in the rearward portion of the hammer. The coil spring 23 is interposed between the projection 3^c, at its rear end, and a stop pin 25^c fixed to the spindle, thereby constantly urging the hammer forwardly through the agency of the spindle. The hammer is provided with the usual catch shoulder adapted to be engaged by the trigger 24 and to hold the hammer in cocked position prior to release thereof by the operator. The trigger is pivotally mounted as at 24^a. The hammer is adapted and arranged to strike the firing pin 25, which ranges longitudinally of the breech bolt from end to end, and plays within a bore produced longitudinally of the breech bolt. The firing pin is retracted by a coil spring 25^a confined within the breech bolt and properly applied to the firing pin.

The extractor 26 and ejector 27 are spring actuated oppositely, being pivotally mounted in opposed relation at the forward end of the breech bolt, by a spring 29 disposed between their rearward ends rearwardly of their pivotal supports; and said extractors and ejectors are mounted in suitable recesses within the opposite sides of the breech bolt. The hooked forward ends of the extractors and ejectors constitute continuations in part of the walls of the T-slot 5^f in the forward face of the breech bolt, which T-slot is traversed by the head of the cartridge in the manner above described. The hook formation of the ejector 27, which is arranged at the side of the breech bolt opposite to that which is in juxtaposition to the ejecting opening 30 in the receiver portion 2^a, is so modified as to produce a bevel formation, or lateral inclination, permitting the release of one side of the head of the cartridge in the ejection of the fired shell through the said ejection opening, such ejection being caused by the impingement upon the shell of the firing pin.

For actuating the carrier, there is provided on the breech bolt 5 a carrier dog 28 controlled by the spring 28^a, which may constitute a portion of the carrier dog of reduced thickness, such dog having an inherent spring quality. This spring 28^a allows the carrier dog to partially retire at its rearward end within an elongated recess in the side wall of the breech bolt, during a certain phase of the movement of the carrier; said carrier dog being intermediately pivotally mounted as indicated in Fig. 11, at the same side of the breech bolt as that within which is produced the recess 5^b which receives the action bar stud 12. During the reciprocation of the breech bolt, the carrier 19 is supported at its lower edge by a stud 28^b upon the carrier dog 28; the carrier being so formed at its lower edge portion that the forward nose 19^d thereof is elevated normally to hold the cartridges from rearward passage from the magazine tube during the movements of the breech bolt; as clearly shown in Fig. 2. When the breech bolt is in its forward elevated position, the carrier 19 is in a depressed position into which it is brought as hereinafter described, permitting the cartridge about to be withdrawn from the magazine tube to contact with the forward face of the breech bolt, as shown in Fig. 1. As the breech bolt is moved toward the closed or upper forward position, traveling thus with the action bar, the cartridge carrier 19 is operated to move the cartridge vertically with the head of the cartridge traversing and held within the T-slot 5^f, as above stated, the carrier dog acting to so elevate the cartridge under urgency of the angular projection 19^a upon the lower portion of the carrier acting upon the carrier dog stud 28^b. The angular projection 19^a to this end is inclined longitudinally; and the movement of the carrier dog stud in a straight line causes the upward movement of the cartridge as above stated. At the upper end of the T-slot 5^f, the cartridge head is forced between the spring-pressed extractor 26 and ejector 27, the spaces rearward of the hooked forward portions of which constitute respectively continuations of the sides of the T-slot 5^f. The head of the cartridge is tensionally gripped by the spring extractor 26 and ejector 27, and the cartridge is thus held against any tendency to vertical displacement after the retirement and descent of the carrier. The cartridge is now held in position of projection from the forward end of the breech bolt, at the upper portion thereof in proper alinement with the bore of the barrel, as shown in Fig. 3, so that the cartridge will enter the barrel when the breech bolt is closed. The carrier 19 is returned to its normal lower position, resting upon the carrier dog stud projection 28^b, through the action of the cam 5^b at the lower portion of the breech bolt, which cam 5^b engages with a cam 19^b on the upper portion of the carrier. This action takes place upon the final forward movement of the breech bolt as the cartridge is passed into the barrel. In or-

der to cause the carrier dog 28 to spring outwardly and slide over the projection 19^a on the carrier, to bring the carrier dog stud 28^b again into position rearwardly of the projection 19^a, there is provided a cam 19^c at the forward end of the projection 19^a, the same consisting of an inclined facial portion of the projection which the carrier dog stud traverses as the breech bolt is moved toward its rearward position.

The firing pin 25, in addition to exploding the cartridge, serves the additional function of an ejector, acting to dislodge the fired cartridge from the extractor and ejector jaws 26 and 27 in a manner well known in the art. To enable the firing pin so to perform, the same is extended somewhat beyond the breech bolt at the rearward end thereof and is arranged to engage a shoulder 3^s in the upper portion of the receiver portion 3 just prior to the moment at which the breech bolt reaches the limit of its rearward movement, causing relative movement of the firing pin and the breech bolt against the tension of the coil spring 25^a. The forward end of the firing pin is thus projected from the breech bolt as shown in Figs. 12 and 13, forcibly disengaging the cartridge head from the extractor and ejector jaws 26 and 27, one side of the cartridge head passing freely over the beveled ejector jaw 27, so that the shell is expelled laterally through the ejection opening 30 in the right-hand side of the receiver. This lateral ejection of the shell results upon one side of the shell head being held by the extractor jaw 26, while the other side is freed by the beveled ejector jaw 27.

Pivoted within a suitable recess in the right-hand wall 2^a of the barrel portion of the receiver is an action bar lock 31, mounted upon a pivot screw 32, and spring actuated into locked position by a coil spring 35^a mounted within a button 33 extending through an opening in the receiver side wall 2^a and normally acting to force the action bar lock into operative position to engage at its forward end with a notch 7^a in the rearward end of the action bar 7. The action bar lock is released through the action of a pin 34 suitably disposed upon the hammer 22 and arranged and adapted to elevate the rear end of the action bar lock through engagement with the projection 31^a, when the hammer is in its forward position as shown in Fig. 1. The receiver part 3 is provided at its forward end with a tenon 3^t adapted to be received in a suitable mortise 2^s in the barrel portion 2 of the receiver; and the two receiver parts are secured together by the take-down screw 21 engaging the threaded hole 2^t in the receiver part 2; the head of the take-down screw 21 being brought to bear upon the receiver part 3. When the receiver parts are separated, their

connected and adjunctive features are exposed to view and may be readily examined and cleaned. Likewise, when the receiver parts are separated, the breech bolt may be moved rearwardly by the action bar 7 to the proper extent to allow the guide 5^s at the left-hand side of the breech bolt to clear the end of the wall 2^a of the barrel portion of the receiver, the action bar stud 12 traversing the inclined elongated slot 5^b in the breech bolt. The breech bolt may thereupon be moved laterally to cause disengagement of the stud 12 from the inclined recess 5^b, and further rearward movement of the breech bolt serves to entirely remove the same. In assembling the breech bolt together with the receiver, these operations are reversed as to order.

It will be noted that the firearm organized as described is adapted to handle various lengths of cartridges, without a pre-determination of the dimensions thereof; and that no independent means for stopping and sorting cartridges as they escape from the magazine are required. Furthermore it will be noted that as the forward extension of the breech bolt engages with the cartridges at the magazine opening, it tends to agitate the cartridges in such a way as to prevent clogging of the cartridges within the rearward end of the magazine, such clogging customarily resulting from adhesion of the same due to the lubricant thereon.

I provide a safety button 35 at the rear portion of the receiver part 3, on the upper tang 3^d thereof, said safety button 35 being arranged to engage with the safety bar 36 upon which acts the trigger spring 37 the tension of which is so applied as to urge the safety bar to a position beneath the upper tang to stop the movement of the trigger, the safety bar 36 bearing at its lower end in engagement with the trigger rearward of its pivotal point. When in operative position, the safety bar blocks rearward pivotal movement of the trigger, thereby providing means to prevent accidental discharge. When in its forward position, the safety bar acts to transmit to the trigger the tension of the spring 37, which is thus opposed to actuation of the trigger to release the hammer 22 in the firing of the cartridge.

The operation, method of use and advantages of the improved construction and organization of firearms constituting the invention, will be readily understood from the foregoing description, taken in connection with the accompanying drawings and the following brief statement:—The grip or slide handle 6 is grasped in one hand of the operator who grasps the forward portion of the stock with the other hand. Such grip or slide handle 6 is only partially illustrated in the drawings, but its organization will be readily understood by those skilled

in the art. The magazine is filled in the manner explained, the cartridges being successively passed into the inner tube 13 through the opening at 17 in the magazine tube 8; the spring 11 and its detent 11^a holding the tubes 13 and 8 in proper relative positions during the filling operation. A backward pull on the handle or grip 6 now causes the mechanism to unbreech, by rearward movement of the breech bolt 5, and the breech bolt at its forward end descends, as the carrier 19 descends, and the head of the cartridge next in order of supply at the rearward end of the magazine tube passes over the carrier head 19^a and is stopped by the forward face of the breech bolt 5, beneath the extensions 5^a and 5^e. Further rearward movement of the breech bolt, under actuation of the action bar 7, is accompanied by upward movement of the carrier head 19^a, which elevates the cartridge, the head of which latter traverses the T-slot 5^f at the forward end of the breech bolt. Rearward movement of the breech bolt is accompanied by cocking of the hammer 22, against the tension of the spring 23, and the hammer is held in cocked position by the trigger 24 which engages with the shoulder 22^a on the hammer. If the trigger is to be temporarily locked against actuation, the safety button 35 is moved rearwardly to cause the jamming of the safety bar 36 beneath the upper tang 3^d. Succeeding forward movement of the breech bolt causes the elevation of the cartridge into proper position for entry of the rearward end of the barrel, the carrier being acted upon by the stud 28^b. This elevation of the cartridge carries the same upwardly into position wherein it is gripped by the extractor and ejector jaws 26 and 27, and is held thereby positively for proper presentation and introduction within the rear end of the barrel. The final forward movement of the breech bolt is accompanied by return of the carrier to its normal lower position, which is caused by the coaction of the cams 5^b and 19^b, the former of which is formed upon the lower portion of the breech bolt, and the latter of which is formed upon the upper portion of the carrier. The breech bolt is now completely breeched and locked in position for explosion of the cartridge; the forward end portion of the breech bolt, at the top thereof, being in engagement with the recoil shoulder 2^e upon the inner surface of the receiver portion 2^b. The trigger is now released for actuation by forwardly moving the safety button 35, which removes the safety bar 36 from its blocked position, and permits the actuation of the trigger 24 for the release of the hammer 22, which latter is brought into contact with the firing pin 25 under urgency of the spring 23. The cartridge is thereupon exploded. A subsequent rearward

movement of the slide handle or grip unbreeches the breech bolt, extracts the exploded shell from the barrel, and causes the ejection of the exploded shell by means of the firing pin, in the well known manner, as to general operation, supplemented by the action of the extractor and ejector jaws 26 and 27, the latter of which is beveled as described and permits a preliminary release of one side of the head of the shell, to cause lateral ejection thereof.

As will be seen, the barrel, magazine and barrel portion of the receiver and their connections and adjuncts constitute the front portion of the firearm; and the stock portion of the receiver and its mechanism and adjuncts, with the trigger and hammer, constitute, together with the butt stock, the rear portion of the firearm; said two parts being capable of disconnection and assembling in the manner described.

I do not desire to be understood as limiting myself to the specific provision, construction, and organization of parts, members and features shown and described; but reserve the right to vary the same in adapting the improvements to varying conditions of use, without departing from the spirit of the invention and the terms of the following claims.

Having thus described my invention, I claim and desire to secure by Letters Patent:—

1. In a magazine firearm, the combination with a vertically and longitudinally movable breech bolt; of an action bar, operative connections between the action bar and the breech bolt, a tubular magazine arranged beneath the barrel, means causing vertical and longitudinal movement of the breech bolt in the reciprocation of the action bar, and means upon the breech bolt for withdrawing cartridges from the magazine during longitudinal movement of the breech bolt.

2. In a magazine firearm, the combination with a longitudinally and vertically movable breech bolt provided at its forward end with spaced extensions arranged and adapted to engage a cartridge within the magazine; of the magazine, and means for longitudinally and vertically moving the breech bolt.

3. In a magazine firearm, the combination with a longitudinally and vertically movable breech bolt provided at its forward end with spaced extensions arranged and adapted to engage a cartridge within the magazine; of said magazine, a carrier, and a carrier dog mounted upon the breech bolt and actuating the carrier into position to act as a cartridge stop during movement of the breech bolt.

4. In a magazine firearm, the combination with a vertically and longitudinally mov-

able breech bolt having at its forward end spaced extensions adapted and arranged to engage a cartridge within the magazine; of said magazine, a carrier pivoted adjacent to its rear end and adapted and arranged to elevate a cartridge between said extensions, and a carrier dog mounted upon the breech bolt and arranged to operate the carrier.

5. In a magazine firearm, the combination with a vertically and longitudinally movable breech bolt provided at its forward end with spaced extensions adapted and arranged to engage a cartridge within the magazine; of the magazine, a carrier, a carrier dog mounted upon the breech bolt and arranged to operate the carrier to elevate a cartridge between said extensions, and an action bar provided with a stud operatively connected with the breech bolt.

6. In a magazine firearm, the combination with a vertically and longitudinally movable breech bolt provided at its forward end with spaced extensions adapted and arranged to engage a cartridge within the magazine; of the magazine, a carrier, a carrier dog mounted upon the breech bolt and arranged to operate the carrier to elevate a cartridge between said extensions, and an action bar provided with a stud operatively connected with the breech bolt; said carrier being pivotally supported adjacent to its rearward end.

7. In a magazine firearm, the combination, with a vertically and longitudinally movable breech bolt provided at its forward end with spaced extensions and with a vertically extending T-slot, said breech bolt being chambered at its forward end between said extensions and cutting said T-slot; of a carrier, and means for actuating the carrier in the movement of the breech bolt to elevate a cartridge from a position beneath the said extensions and with the head of the cartridge traversing said T-slot.

8. In a firearm, the combination with a vertically and longitudinally movable breech bolt, of a cartridge carrier and a stationary tubular magazine arranged to supply cartridges longitudinally; said breech bolt having a slotted face to receive the cartridge head and being provided with means to hold the cartridge prior to the reception of the head thereof in the slot; and means for operating the carrier.

9. In a magazine firearm, a longitudinally and vertically movable breech bolt provided with slotted extensions at the forward end thereof, a stationary tubular magazine supplying cartridges longitudinally beneath the said slotted extensions, and means for moving the breech bolt to cause said slotted extensions to engage the cartridge head within the magazine during the vertical movement of the breech bolt.

10. In a firearm, a receiver comprising

separable members providing a chamber for the operative parts, a breech bolt guided and confined by one of the receiver members and movable therein, and an action bar provided with a stud which is held in operative engagement with the breech bolt by the side wall of the member of the receiver within which the breech bolt is guided and confined, said side wall of the receiver member being recessed to release the breech bolt at a predetermined point in the movement thereof rearward of the normal rear position of the breech bolt, whereby the breech bolt may be disengaged from the action bar stud.

11. In a magazine firearm, a tubular magazine comprising inner and outer telescoping tubes, and a spring mounted upon the barrel and acting at one end frictionally to prevent longitudinal movement of the inner tube and acting as a detent at the other end to prevent movement of the outer tube.

12. In a magazine firearm, a tubular magazine comprising inner and outer telescoping tubes, a barrel, a magazine band connected with the barrel and embracing the magazine, and means connected with the magazine band for frictionally opposing movement of the inner tube and for locking the outer tube against movement.

13. In a firearm, a longitudinally movable action bar, a pivoted action bar lock arranged to co-act with the action bar, a movable finger button upon the action bar lock, and a spring within the finger button and urging the action bar lock into locking position.

14. In a firearm, a reciprocating breech bolt, a separable receiver provided with an ejection opening at one side, a combined firing pin and ejector member mounted to move longitudinally of the breech bolt, and an extractor member and an ejector member mounted at the forward end of the breech bolt and adapted to jointly engage the cartridge head, said ejector member having a beveled hook portion formed to release one side of the cartridge head in advance of the remaining portion thereof.

15. In a firearm, a reciprocating breech bolt, a combined firing pin and ejector member mounted to move longitudinally of the breech bolt, and an extractor member and an ejector member arranged at the forward end of the breech bolt and adapted to engage the cartridge head, said ejector member having a beveled hook portion formed to release one side of the head of the cartridge in advance of the remaining portions thereof.

16. In a firearm, a vertically and longitudinally movable breech bolt provided with a T-slotted forward portion, an action bar, means whereby the breech bolt is moved in the movement of the action bar, a movable carrier, and means mounted upon the breech bolt for elevating the carrier in both the for-

ward and rearward movements of the breech bolt.

17. In a firearm, a vertically and longitudinally movable breech bolt provided with
5 a T-slotted forward portion, an action bar, means whereby the breech bolt is moved in the movement of the action bar, a movable carrier, and means mounted upon the breech
10 bolt for elevating the carrier in both the forward and rearward movements of the breech bolt; said latter means comprising a spring-

actuated carrier dog provided with a stud; said carrier being provided with a cam with which the stud co-acts.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

BASIL H. SAVAGE.

Witnesses:

C. P. WARDEN,
ARTHUR W. SAVAGE.