W. D. FORBES.

FIREARM.

APPLICATION FILED MAR. 23, 1916. RENEWED JULY 22, 1919.

1,315,295.

Patented Sept. 9, 1919.

4 SHEETS—SHEET 1.

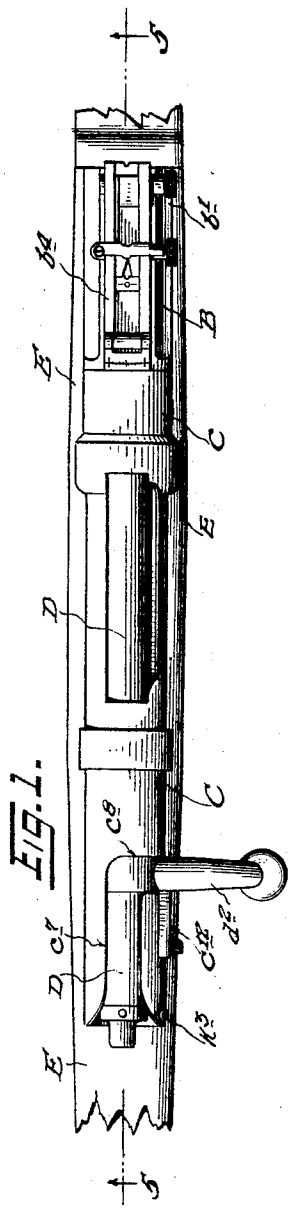


Fig. 1.

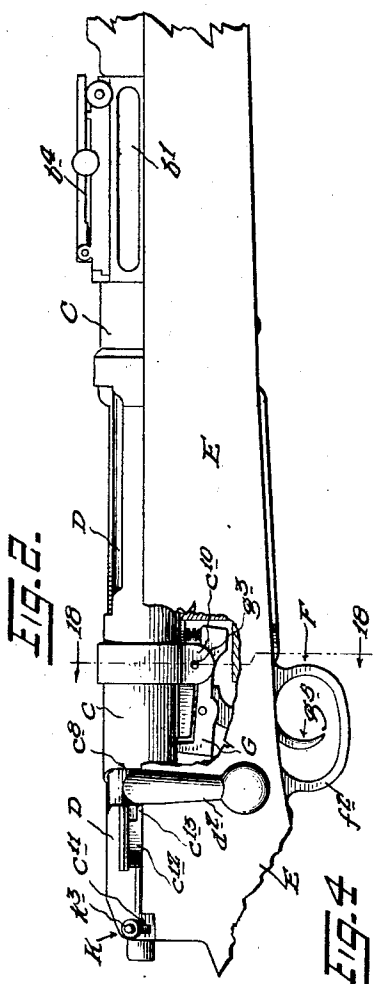


Fig. 2.

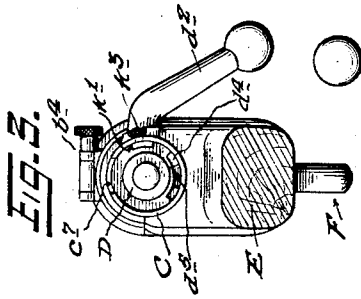


Fig. 3.

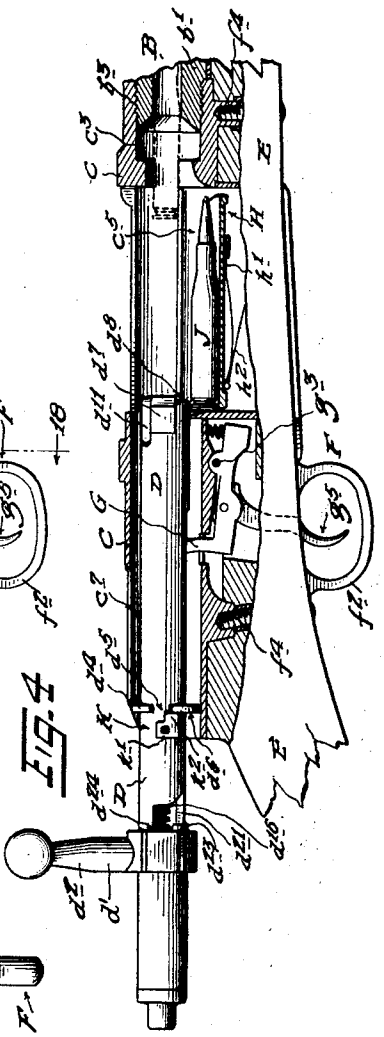


Fig. 4.

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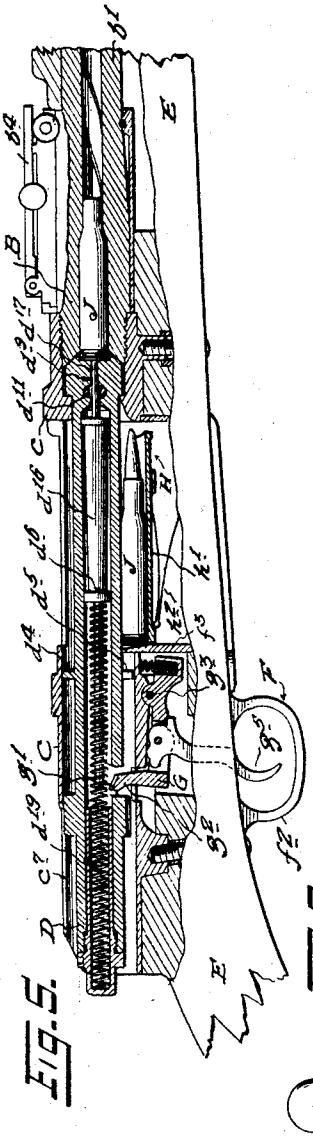


FIG. 5.

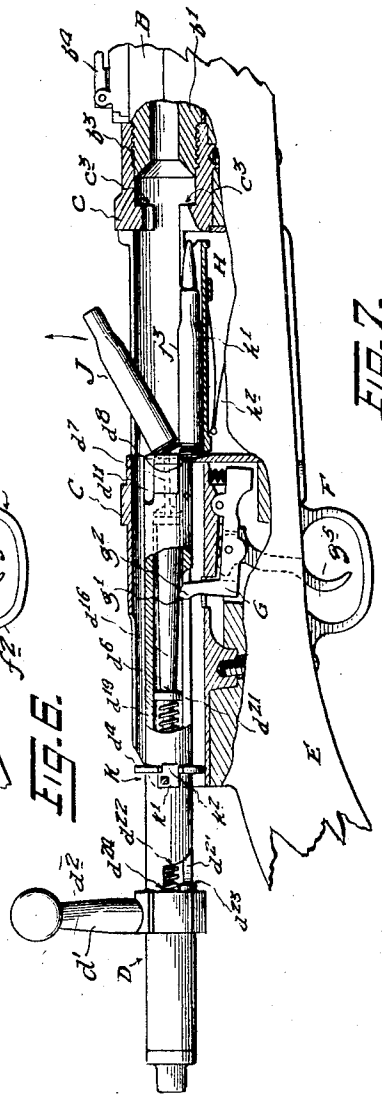


FIG. 6.

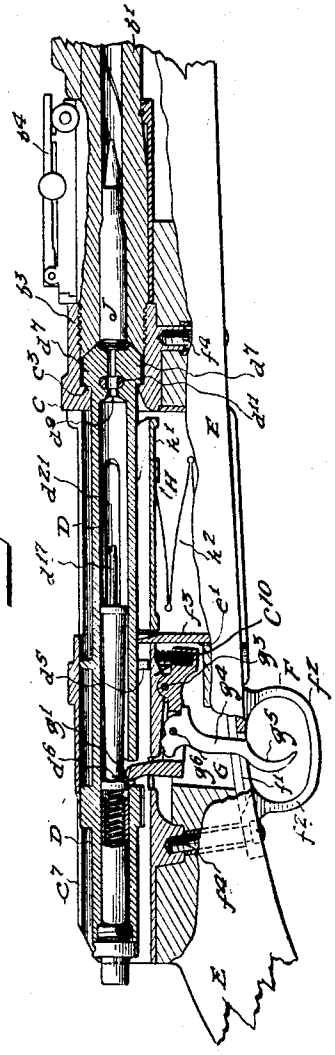


FIG. 7.

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4 SHEETS—SHEET 3.

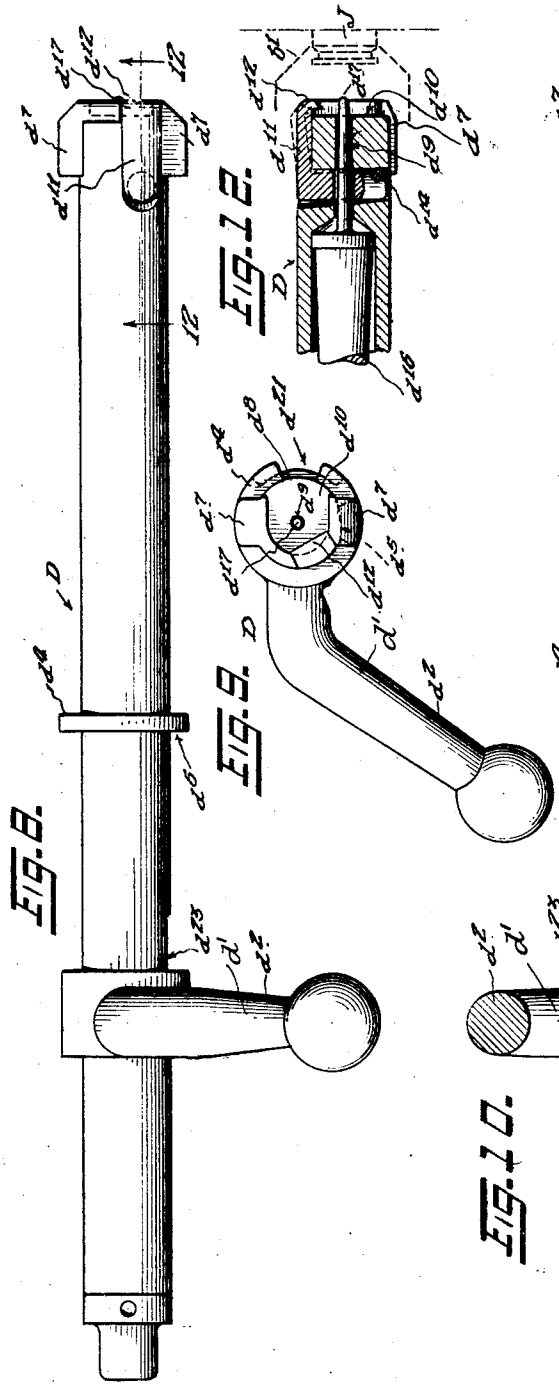


Fig. 8.

Fig. 9.

Fig. 12.

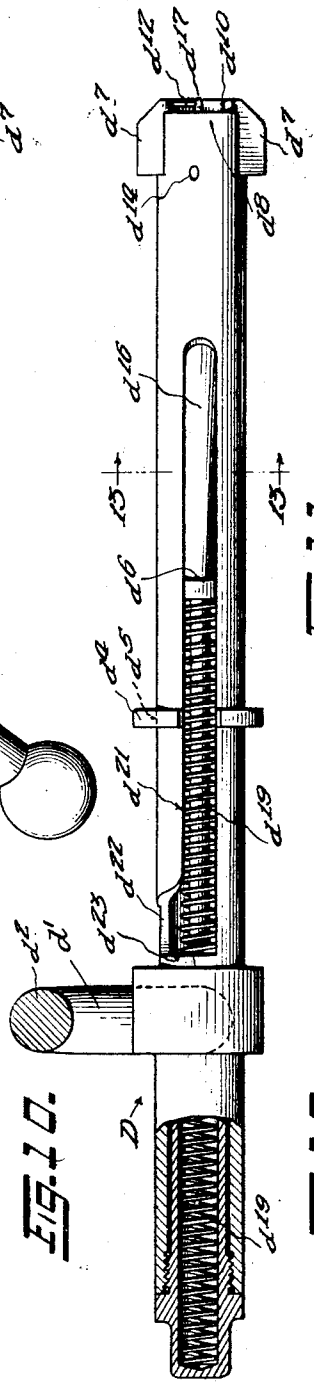


Fig. 10.

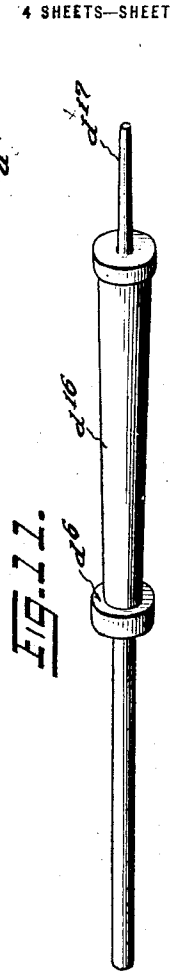


Fig. 11.

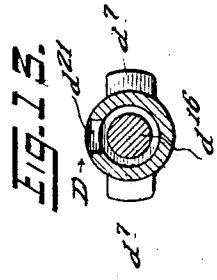


Fig. 13.

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FIREARM.

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4 SHEETS—SHEET 4.

Fig. 14.

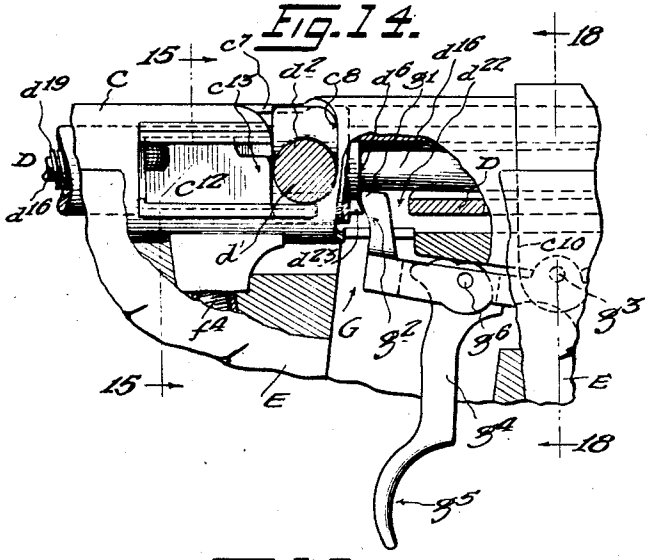


Fig. 15.

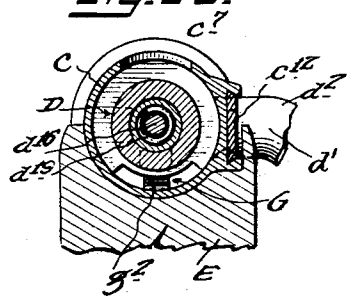


Fig. 16.

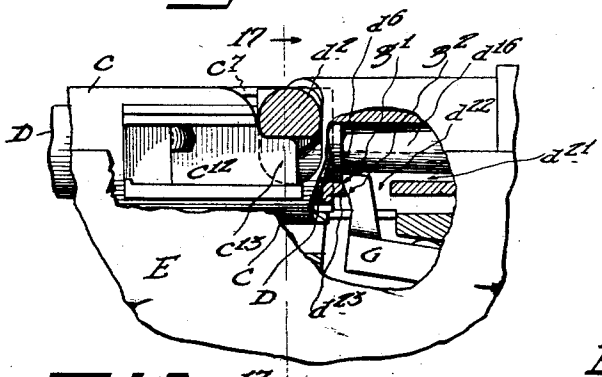


Fig. 17.

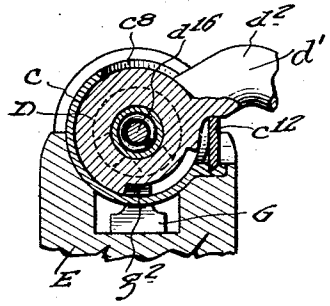


Fig. 19.

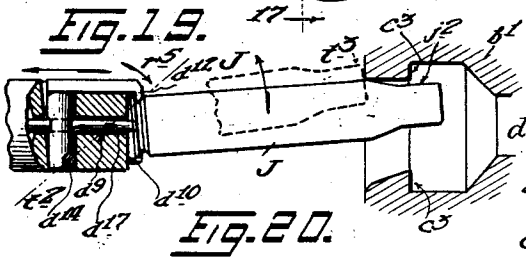


Fig. 18.

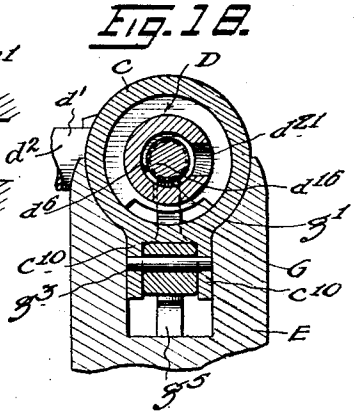
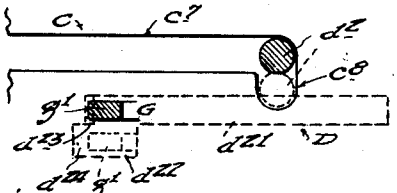


Fig. 20.



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UNITED STATES PATENT OFFICE.

WILLIAM D. FORBES, OF NEW LONDON, CONNECTICUT.

FIREARM.

1,315,295. Specification of Letters Patent. Patented Sept. 9, 1919.

Application filed March 23, 1916, Serial No. 86,072. Renewed July 22, 1919. Serial No. 312,575.

To all whom it may concern:

Be it known that I, WILLIAM D. FORBES, a citizen of the United States, residing in New London, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

This invention relates more especially to that class of breech-loading firearms which are known as bolt-guns, and a principal object is to furnish a breech-loader having an improved bolt-mechanism especially adapted for use in military and other rifles using relatively long and high-power cartridges. Accordingly, and to facilitate the illustration thereof, the present improvements are shown in the accompanying drawings as being applied to a shoulder-arm of a well-known type.

In the drawings, Figure 1 is a plan view as seen from above in Fig. 2, of the mid-length portion of a firearm made in accordance with my present improvements.

Fig. 2 is a side view, on the same scale as, and as seen from below in Fig. 1, certain portions being in section.

Fig. 3 is an end elevation of Fig. 2.

Fig. 4 is a side elevation, partly in section, showing the parts in semi-operative position as a hand-loading firearm.

Fig. 5 is a side elevation in section taken on line 5—5 of Fig. 1, of a magazine firearm in inoperative position after being fired.

Fig. 6 is the same elevation, showing the bolt in retracted position and ejecting a cartridge.

Fig. 7 is the same elevation, showing the bolt after loading a cartridge and the firing member set ready for firing.

Fig. 8 is a top plan of the assembled bolt mechanism.

Fig. 9 is an end elevation of the same, and looking from the forward end.

Fig. 10 is an under plan view of the bolt, partly in section.

Fig. 11 is a perspective view of the bolt firing member.

Fig. 12 is a sectional elevation of the forward end of the bolt taken on line 12—12 of Fig. 8.

Fig. 13 is a sectional elevation of the bolt body taken on line 13—13 of Fig. 10.

Fig. 14 is a side elevation, partly in section, showing the firing device in a cocked position.

Fig. 15 is a transverse section of same on line 15—15 of Fig. 14.

Fig. 16 is a view of the firing device and the sear in a locked or safety position.

Fig. 17 is a transverse section of same on line 17—17 of Fig. 16.

Fig. 18 is a sectional elevation of certain parts taken on line 18—18 of Figs. 2 and 14, respectively.

Fig. 19 is a diagrammatic operative view of the bolt extracting a cartridge, and Fig. 20 is a diagrammatic operative view, showing the coaction of the sear-face with the bolt.

The usual barrel, B, is shown mounted on a stock E, and in practice will be provided with the usual rear and front sights, at b^4, the latter not shown. The stock is preferably made of wood, and it may be of such suitable or usual proportions as may be desired; hence in all the figures, the rearward end or butt of the stock is not shown.

The rearward end of the barrel B is shown provided with a screw thread at b^3, whereby to secure the barrel in a well-known manner to a tubular, or hollow, receiver which is herein designated in a general way by C, and extends rearwardly from the barrel and above the stock, E. Below the stock E, is located a trigger-guard, or guard-plate, F, which may be removably held in place by some suitable screws, as f^4, extending through the guard and stock, and threaded into the receiver, preferably in about the manner indicated, for instance, in Fig. 7.

The guard-plate F is shown provided with a mortise or slot, f^1, for the trigger g^4 and with the usual bow or depending guard, f^2, for the lower end g^5, of the trigger which is pivoted to the sear at g^6. Forward of the guard f^2, the plate F is shown broadened and formed for receiving through a mortise therein, as e^1, the box or casing, as f^3, of a cartridge magazine H, (see Figs. 4 to 7).

The sear-member, G, is shown pivotally supported at g^3, in a projecting part c^{10} of the frame, and is operable by any suitable trigger device; these two elements I designate as the trigger-sear device.

In my present improvements,—as in bolt-guns generally,—the movements of the tubular breech-bolt D in the receiver C, comprise the usual long-stroke retractive movement rearwardly from the firing position, as shown by comparison of Figs. 6, 7, and an oscillating movement when in the forward position, as shown by comparison of the sectional views, Figs. 6, 7 and 15. To provide for these bolt-movements, the receiver C is shown formed with the arm-slot c^7 in the upper part thereof, and with the lateral recess or space c^8 at the forward end of said slot or guide-way, for permitting the rotation of the bolt when in forward position, (Fig. 2), for thereby engaging and disengaging the bolt-lugs d^7, with and from the receiver, in a well-known manner. The shank portion d^1, of the bolt-operating handle d^2 is fitted to move freely within said slot c^7 and recess c^8, while the rearward stroke of the bolt is limited by the removable stroke-limiting stop device K; when this stop is removed, the bolt D may be withdrawn rearwardly out of the receiver. Thus the stop K is an assembling device, in addition to being a stroke-changing device as elsewhere herein more fully explained.

The form of receiver or frame shown in the drawings is of the usual tubular kind in that it has a central opening the entire length thereof, so that the breech-bolt, on the stroke-limiting stop being removed, may be withdrawn from the receiver through the rearward end of that central opening. The slot-and-recess guide-way c^7 in the upper side of the receiver has a counterpart in the similarly shaped path-way d^{21} in the lower side of the breech-bolt; this slot-and-recess sear-point path-way, however, is arranged in the mechanism in a reverse manner as to the location of the said recess, both longitudinally and circumferentially. In the receiver,—as would be seen in a plan view,—the recess c^8 is on the forward end and right-hand side, while in the breech-bolt the side-recess d^{22} is at the rearward end and also at the right-hand side; but the recess, c^8, extending toward the right-hand is circumferentially opposite, relatively to both the breech-bolt and the receiver, of the recess d^{22} which, being below the bolt, also extends toward the right-hand as would be seen in a plan view. This feature and arrangement is illustrated in the diagram Fig. 20, where the bolt-guiding handle-arm d^2 is shown at the forward end of the receiver guide-way c^7, while the sear-point g^1 is shown in a corresponding position at the rearward end of the path-way slot d^{21}, and in interlocking engagement with a safety-face or rim d^{23}.

In the present instance, I have shown the bolt-stroke-limiting stop K projecting from an arc-shaped member k^1, which is applied upon the inner surface of the hollow receiver C, and is shiftable from an ineffective position, Fig. 6, to a bolt-stopping position, Fig. 4. In practice, said stop-member, k^1, may have any suitable and convenient construction, and may be provided with any suitable retaining means, but I prefer to hold the member k^1 in place by means of some simple form of bolt or screw, as k^3, passing through a slot, c^{11}, (Fig. 2), the whole stop-device being so arranged that it may be readily pushed into one position or the other, as from Fig. 4 to Fig. 6, or vice versa.

Thus the stroke-limiting device may be considered as comprising a shiftable stop-member, as K, and a coacting recess and stop-face, as d^5 and d^6, (Figs. 4 and 6) appurtenant to the breech-bolt. In Fig. 4 the recess d^5 is shown somewhat wider than the stop-end k^2, to provide for a small amount of rotative movement of the breech-bolt D without thereby interfering with the proper action of the stop-device. This feature is coöperative in some respects with a rotation-limiting means or device by which the rotative or oscillating movement of the breech-bolt is or may be restricted at certain times, in a manner and for purposes elsewhere herein more fully explained.

While being retracted, the shell rests against the bolt-face at d^{10}, and the tension line t^2 of the extractor d^{11} is thus in an inclined direction from the hook-face d^{12} to the pivot d^{14}, and intersects the line of thrust of the ejector pin d^{17}, so that the forward pressure of the firing-spring d^{19} acting through the pin d^{17} tends to draw the hook d^{12} inwardly toward the firing pin as indicated by arrow r^5, (Fig. 19), and so that the reduced forward end of the shell, as at j^2, Fig. 19, is swung upwardly against the barrel, and on fully emerging, (see dotted position at t^3), is quickly forced out, or ejected. In this manner, the shell during the extraction stroke thereof, is under a continued spring action which becomes effective instantly on the shell entirely leaving the bore, whatever the length of the shell may be; also, on a mis-fire occuring, the ejecting operation takes place at a relatively later moment, owing to the extension of the projectile forwardly from the shell. Thus the timing of the ejecting act is dependent on the article which is being extracted, rather than upon an ejector means which is operative at a fixed point in the retractive stroke of the breech-bolt.

The magazine as regards the holding of the uppermost cartridge may be arranged in various ways in accordance with constructions already known in the prior art. According to one of these arrangements (not shown) which is well known in con-

nection with the so called "Springfield rifle," the magazine is provided with lips or ribs whereby the uppermost cartridge will be held down to the position of the cartridge J as shown in Fig. 6; in this position, the bolt D when moving forward takes against the upper part of the cartridge head and so drives the cartridge forwardly and thus loads the cartridge into the barrel.

Another arrangement of the magazine may be used in which said side ribs or stops are omitted so that when the bolt is in its fully retracted position, as shown in Fig. 6, the head of the uppermost cartridge will come up below the protruding firing-pin after the manner which will be evident from Fig. 6.

The tubular bolt D not only carries therein the firing member, as d^{16}, but has formed in the lower side thereof, a long slot d^{21}, which has therein a lateral recess d^{22}, (Fig. 10), which corresponds with said receiver slot c^7 and recess c^8. The bolt-slot d^{21} forms and serves as a path in which the sear-point stands (or moves relatively to the bolt) during the forward and rearward strokes of the bolt relatively to the receiver. When the bolt is rotated to lock it in firing position, the handle-arm d^2 moves into the receiver-recess c^8 while the bolt-recess is moved relatively to the sear-point, which point during such movement lies above the safety-face or rim d^{23}.

The sear is shown operably-supported by a pivotal connection with the frame and in a position for the firing-pin-engaging end thereof to coact with the centrally-located firing-pin. The slidable and oscillatable breech-bolt has centrally therein a firing-pin, and in the lower side thereof has slot-and-recess path-way for the pin-engaging end of the sear, and also has a sear-blocking means, such as a safety-face or the like, located on the rearward side of said path-way recess and in position for coacting with the sear when the breech-bolt is advanced to forward position relatively to the barrel; and the mechanism comprises means operable on the oscillation of the breech-bolt in one direction, to lock this bolt in firing position and then withdraw or retract said sear-blocking means to an ineffective position, and thereby permit the retraction of the sear from the firing-pin.

During the forward loading-stroke of the hollow breech-bolt D, (as from position Fig. 6 to position Fig. 7), the sear-point g^1 lies within the long slot d^{21} in the then lower side of the bolt, (Fig. 6), so that the sear-face g^2 engages with the cocking-face d^6 of the "hammer" or firing device d^{16}, and thereby holds this device or firing-pin in a retracted and firing position while the bolt itself (Fig. 7) goes to the forward position, and then is turned to the firing position thereof. At this time the safety-face d^{23} (Figs. 7, 16) is brought directly under, and into the path of movement of, the sear-point g^1, and thereby positively prevents the said sear-face g^2 from being disengaged from the firing device d^{16}. This safety position will now continue until after the rotation of the breech-bolt has brought the locking-lugs d^7, d^7, thereof into a full engagement with the coacting abutment faces, as c^3, c^3, of the frame or receiver,—see Figs. 5, 6, 7. If, now, said rotation of the bolt D shall be great enough, as from position Fig. 6 to position Fig. 7, said safety-rim or face d^{23} will be withdrawn from under the sear-point, and a space, as d^{24}, (Figs. 7, 14 and 20), will be brought into position directly below the sear-point, so that the sear may now be retracted (downwardly) by the trigger g^4, (Fig. 14), and thus release the firing-pin or hammer d^{16}, and so fire the charge,—see Fig. 5. Thus the unblocking of the sear as effected by the said rotation of the breech-bolt, only permits the retraction of the sear from the firing-pin after the locking of the breech-bolt in firing position.

When the bolt-mechanism is organized in the manner herein described, the firing member or hammer d^{16} is arranged to also serve as one element of the shell-ejecting means. The main-spring d^{19} is shown removably inclosed within the bolt in a conventional manner. Thus the whole length of the said firing-pin member is shown as being such that in the fully opened position of the mechanism, (Fig. 6), the firing-point d^{17} projects through the hole d^9 and forward of the bolt-face d^{10} (Fig. 19), far enough to eject the shell, as at t^3, by the aid of the extractor hook d^{12}. In practice, this ejection is preferably completed somewhat before the bolt D reaches its extreme rearward position, so that when the stroke-limiting stop K is in operation, the shell will be properly thrown out before this reduced retractive stroke of the breech-bolt is entirely completed. When thus arranged, and the bolt D is fully retracted as in Fig. 6, the combined firing and ejecting point d^{17} protrudes so far forward of the bolt-face d^{10} that the uppermost cartridge, as j^3, Fig. 6,—when moving upwardly from the magazine, will engage under said firing-pin point d^{17}, and thereby (for the moment) stop the upward movement of the magazine-supply of cartridges until the bolt in moving forward a short distance shall have brought the forward end thereof above the cartridge next below, and thereby safeguard the action of mechanism during the loading-in operation. Thus the firing-member d^{16} may be arranged for coacting in three separate ways with

other parts of the mechanism,—*i. e.*, as a firing-pin, as an ejector, as a cartridge-stop.

To provide for hand-loading, a stroke-limiting, or stroke-changing, means is applied to the mechanism,—in some convenient location,—whereby to prevent the full retraction of the bolt D, and thus leave the forward end of the bolt, as at d^8, Fig. 4, projecting forwardly above the uppermost cartridge J, in the magazine, and thus forming a stop device for preventing the magazine-spring h^2 from pushing the follower or elevator h^1 upwardly within the magazine casing or chamber c^5. A preferred arrangement of such a stroke-limiter is illustrated in detail in Figs. 2 to 6, where the bolt-guiding collar d^4 is shown provided with an opening or recess d^5 arranged for coacting with the forwardly-projecting end k^2 of the shiftable stop k^1. When the bolt D is retracted, said recess d^5 stands in some one given position circumferentially of the bolt-axis and with relation to the receiver C, and hence when the stop K is set in a corresponding circumferential position (Fig. 6), the stop-end k^2 will enter said recess and so permit the breech-bolt D (Fig. 6) to be fully retracted, and thereby withdraw the forward end d^8 of the bolt D (Fig. 6) from above the upper cartridge J, which is thereupon pushed up into position for engaging forward of the bolt-face d^{10} and for being thereby loaded into the barrel (Fig. 7) on the next forward stroke of the breech-bolt to firing position.

Since it is often desirable or necessary to load the firearm, and to then hold the firing-pin in safety position for an indefinite period, means may be provided for accomplishing this object by limiting the described rotation of the breech-bolt toward firing position, and thereby prevent a complete withdrawal of the safety-rim or stop d^{23} from under the sear-point g^1. For this purpose, I have provided a stop-device in the nature of a rotation-limiter, whereby to suitably limit the rotation of the bolt D and said rim or face d^{22} thereof relatively to the sear. One form of stop suitable for said purposes, consists of a reciprocatably-supported blocking piece, as c^{12}, (Figs. 14 to 17), located in position for being slid under the bolt-arm d^2, and thus prevent said arm (Figs. 16 and 17) from being swung down to the firing position thereof. In the particular arrangement herein illustrated, the blocking-stop c^{12} consists of a small slide manually-operable for projecting the stop-face c^{13} thereof under the bolt-arm d^2, (Figs. 16 and 17), and for withdrawing said stop-face to the ineffective, or non-safety position,—Figs. 14 and 15. It will, of course, be understood that even in the blocked "safety" position, (Fig. 16), the locking-lugs d^7, d^7, at the forward end of the bolt, are so far engaged with the receiver faces, as to safely hold the breech-bolt D against retraction should the cartridge be fired accidentally or in a premature manner.

One advantageous feature of the mechanism in the arrangement thereof herein selected for illustration, is that the receiver is capable, by reason of a simple form, of being readily manufactured at a minimum relative cost, and thus reduce the otherwise normal loss due to the breakages in hardening. A further feature of the mechanism relates to the guidance of the breech-bolt by the sear nose, in any case where other guiding means may not be provided therefor. The long longitudinal slot or pathway in the lower side of the bolt in which the nose of the sear can travel not only allows the sear nose to move therein, but also acts after the manner of a key-way in which the sear nose becomes a key thus guiding the bolt in its forward motion and preventing its partial rotation until the locking lugs on the bolt register with the openings in the rear of the receiver. Also the forward end of this slot or recess in the lower part of the bolt is shown so located that on the bolt being drawn back to its greatest normal extent, it will come in contact with the forward end of the sear nose, which thus arrests the travel of the bolt rearwardly in the receiver. Thus it will be seen that the sear performs, or may perform, three functions, holding back the firing pin, guiding the breech-bolt, and limiting the stroke of the bolt.

Having thus described my invention, I claim:

1. In a breech-loading firearm, the combination of a frame, a barrel, a sear operably-supported in the frame in position for a firing-pin-engaging end thereof to coact with a centrally-located firing-pin, a downwardly and forwardly inclining cam face on the rear end of said firing-pin engaging end, a slidable breech-bolt oscillatable about its longitudinal axis and having centrally therein a firing-pin, and having in the lower side thereof a slot-and-recess path-way for the firing-pin-engaging end of the sear, and a downwardly and forwardly inclining sear-blocking safety-face located on the rearward side of said path-way recess of the breech-bolt, and in position for coacting with the cam face of said sear when the breech-bolt is advanced to forward position relatively to the barrel to insure the secure engagement of said sear with said firing-pin.

2. In a breech-loading firearm, the combination of a frame, having longitudinally therein a breech-bolt chamber, a barrel, a sear operably-supported in the frame below the breech-bolt chamber and in position for a firing-pin-engaging rearward end thereof

to coact with a centrally-located firing-pin, a downwardly and forwardly inclining cam face on the rear end of said firing-pin engaging end, a breech-bolt slidable in said frame and oscillatable about its longitudinal axis and having centrally therein a firing-pin, and having in the lower side thereof a slot-and-recess path-way which (when the bolt is oscillated to retracting position) has the slot portion thereof forming a passage for said rearward end of the sear, and also having a downwardly and forwardly inclining sear-blocking safety-face located on the rearward side of said path-way recess and in position for coacting with the cam face of said sear when the breech-bolt is advanced to forward position relatively to the barrel to insure the secure engagement of said sear with said firing pin.

3. In a firearm mechanism, the combination of a frame, a barrel, a reciprocatable tubular breech-bolt slidable through a loading stroke when in one rotative position and rotatable through a locking stroke when advanced to forward position, a firing-pin reciprocatably-supported within the breech-bolt, a sear having a firing-pin-engaging face in position for engaging the firing-pin on the forward sliding stroke of the breech-bolt, sear-blocking means appurtenant to the breech-bolt and arranged for engaging and blocking the sear on the sliding of the breech-bolt to forward position, and for unlocking the sear on the rotating of the breech-bolt to firing position, a handle on said breech-bolt, and means slidable into the path of movement of said handle to anchor said breech-bolt against rotation beyond said sear blocking means.

4. In a firearm mechanism, the combination of a tubular frame, a barrel, a reciprocatable tubular breech-bolt slidable through a loading stroke when in one rotative position and rotatable through a locking stroke when advanced to forward position, a spring-actuated firing-pin located and rotatably supported within the breech-bolt, a sear having a firing-pin-engaging face in position for engaging the firing-pin on the forward sliding stroke of the breech-bolt, and sear-blocking means in position and arranged for blocking the sear on the sliding of the breech-bolt to forward position, and for unlocking the sear on the rotating of the breech-bolt to firing position, a handle on said breech-bolt, and means slidable into the path of movement of said handle to anchor said breech-bolt against rotation beyond said sear blocking means.

5. In a firearm mechanism, the combination of a frame, a barrel, a reciprocatable tubular breech bolt having a shell-seat at the forward end thereof, a rim at said shell-seat partly broken away, a combined ejector and firing pin member operably carried within the breech bolt, there being a hook-receiving opening in said rim opposite said broken away portion, and an extractor operably supported by a pivotal connection with the breech bolt and having a hook extending beyond said shell-seat and registering in said hook-receiving opening to form a continuation of the rim.

6. In a firearm mechanism, the combination of a frame, a barrel, a reciprocatable hollow breech-bolt having a shell-seat at the forward end thereof and provided with an extractor, a combined firing-pin and cartridge-stop carried within the breech-bolt and normally projecting forwardly of said shell-seat when the breech-bolt is fully retracted, a magazine and means therein for elevating a cartridge to engage the forward end of the breech-bolt below said projecting stop when the breech-bolt is in the fully retracted position thereof, means for operating the breech-bolt and limiting the stroke thereof, and means operative during the forward movement of the breech-bolt for retracting said firing-pin and stop relatively to the breech-bolt.

7. In a firearm mechanism, the combination of a frame, a barrel, a reciprocatable hollow breech-bolt having a shell-seat at the forward end thereof and provided with an extractor, a combined firing-pin and cartridge-stop carried within the breech-bolt and normally projecting forwardly of said shell-seat when the breech-bolt is fully retracted, a magazine and means therein for elevating a cartridge to engage the forward end of the breech-bolt below said projecting stop when the breech-bolt is in the fully retracted position thereof, means for operating the breech-bolt and limiting the stroke thereof, and a sear-and-trigger device operative during the forward movement of the breech-bolt for retracting said firing-pin and stop relatively to the breech-bolt.

8. In a firearm mechanism, the combination of a frame, a barrel, a reciprocatable hollow breech-bolt having a shell-seat at the forward end thereof and provided with an extractor, a combined firing-pin and cartridge-stop carried within the breech-bolt and normally projecting forwardly of said shell-seat when the breech-bolt is fully retracted, a magazine and means therein for elevating a cartridge to engage forward of the breech-bolt, below said projecting stop, when the breech-bolt is in the fully retracted position thereof, means for operating the breech-bolt, means operable during the forward movement of the breech-bolt for retracting said firing-pin and stop relatively to the breech-bolt, and a bolt-stroke-limiting device coöperative as between the frame and breech-bolt and shiftable into two positions,

and arranged when in one position for permitting and when in the other position for preventing the full retraction of the breech-bolt.

9. In a firearm mechanism, the combination of a frame, a barrel, a reciprocatable hollow breech-bolt having a shell-seat at the forward end thereof and provided with an extractor, a combined firing-pin and cartridge-stop carried within the breech-bolt and normally projecting forwardly of said shell-seat when the breech-bolt is fully retracted, a magazine and means for elevating a cartridge to engage forward of the breech-bolt, below said projecting stop, when the breech-bolt is in the fully retracted position thereof, means for operating the breech-bolt, a sear-and-trigger device arranged and operable during the forward movement of the breech-bolt for retracting said firing-pin and stop relatively to the breech-bolt, and bolt-stroke-limiting means coöperative as between the frame and breech-bolt and settable in two positions and arranged when in one position for permitting and when in the other position for preventing the full retraction of the breech-bolt.

10. In a firearm mechanism, the combination of a frame, a barrel, a reciprocatable breech-bolt provided with an extractor, a combined firing-pin and cartridge-stop carried within the breech-bolt and normally projecting forwardly of the breech-bolt when this bolt is fully retracted, a magazine and means therein for elevating a cartridge to engage, forward of the breech-bolt below said projecting stop when the breech-bolt is in the fully retracted position thereof, means for operating the breech-bolt, a sear-and-trigger device arranged and operable during the forward movement of the breech-bolt for retracting said firing-pin and stop relatively to the breech-bolt, and a bolt-stroke-limiting device carried on the frame and settable in two positions and arranged, when in one position, for permitting, and when in the other position for preventing the full retraction of the breech-bolt.

11. In a firearm mechanism, the combination of a frame, a barrel, a reciprocatable tubular breech-bolt having a shell seat at the forward end thereof, a combined ejector and firing pin member operably carried within the breech-bolt, and an extractor operably connected to said breech-bolt at one side of the combined ejector and firing pin, and said extractor being provided with a cylindrical opening coinciding in position with the axial opening through which the firing pin must pass in the bolt and having a hook located on the other side of the said pin and in coöperative relation with said shell seat, and means for retracting, releasing and forwardly-actuating said ejector and firing pin member, the shell-seat and hook forming a rim partially broken away to facilitate ejection of the cartridge.

12. In a firearm mechanism, the combination of a frame, a barrel, a reciprocatable hollow breech-bolt, an extractor, a firing pin carried within the breech-bolt, a magazine, and means for elevating a cartridge to engage the forward end of the breech-bolt when the breech-bolt is in the fully retracted position, means for operating the breech-bolt, a sear and trigger device arranged and operable during the forward movement of the breech-bolt for retracting said firing pin relatively to the breech-bolt, a bolt-stroke limiting plate having a receding abutment and an advance abutment mounted in said frame to be slidable in two positions, in one position to permit said breech-bolt to coöperate with said receding abutment and permit the full retraction of said breech-bolt and in the other position to permit said breech-bolt to coöperate with said advance abutment and prevent the full retraction of said breech-bolt.

13. In a breech loading firearm, the combination of a barrel, a dually constructed frame, the forward member of which receives the barrel and supports the shock of the explosion of the cartridge while the rearward portion acts as a guide and receiver for bolt and sear the latter being operably supported in the frame in position for a firing pin engaging end thereof to coact with a centrally located firing pin, a slidable breech-bolt oscillatable about its longitudinal axis and having centrally therein a firing pin, and having in the lower side thereof a slot and recess for the firing end of the sear and a removable stop carried by the receiver adjacent its rear end, said stop having a receding abutment and an advance abutment, and mounted in said receiver to be slidable in two positions, in one position to permit said breech-bolt to coöperate with said receding abutment and permit the full retraction of said breech-bolt and in the other position to permit said breech-bolt to coöperate with said advance abutment and prevent the full retraction of said breech-bolt, said stop removable for permitting the slidable breech-bolt to be entirely withdrawn from the receiver.

14. In a breech loading firearm, the combination of a barrel, a dually constructed frame, the forward member of which receives the barrel and supports the shock of the explosion of the cartridge while the rearward portion acts as a guide and receiver for bolt and sear the latter being operably supported in the frame in position to engage the firing pin appurtenant to the slidable breech-bolt, and a removable stop carried by the receiver adjacent its rear end,

said stop having a receding abutment and an advance abutment and mounted in said receiver to be slidable in two positions, in one position to permit said breech-bolt to coöperate with said receding abutment and permit the full retraction of said breech-bolt and in the other position to permit said breech-bolt to coöperate with said advance abutment and prevent the full retraction of said breech-bolt, said stop removable for permitting the slidable breech-bolt to be entirely withdrawn from the receiver.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."