

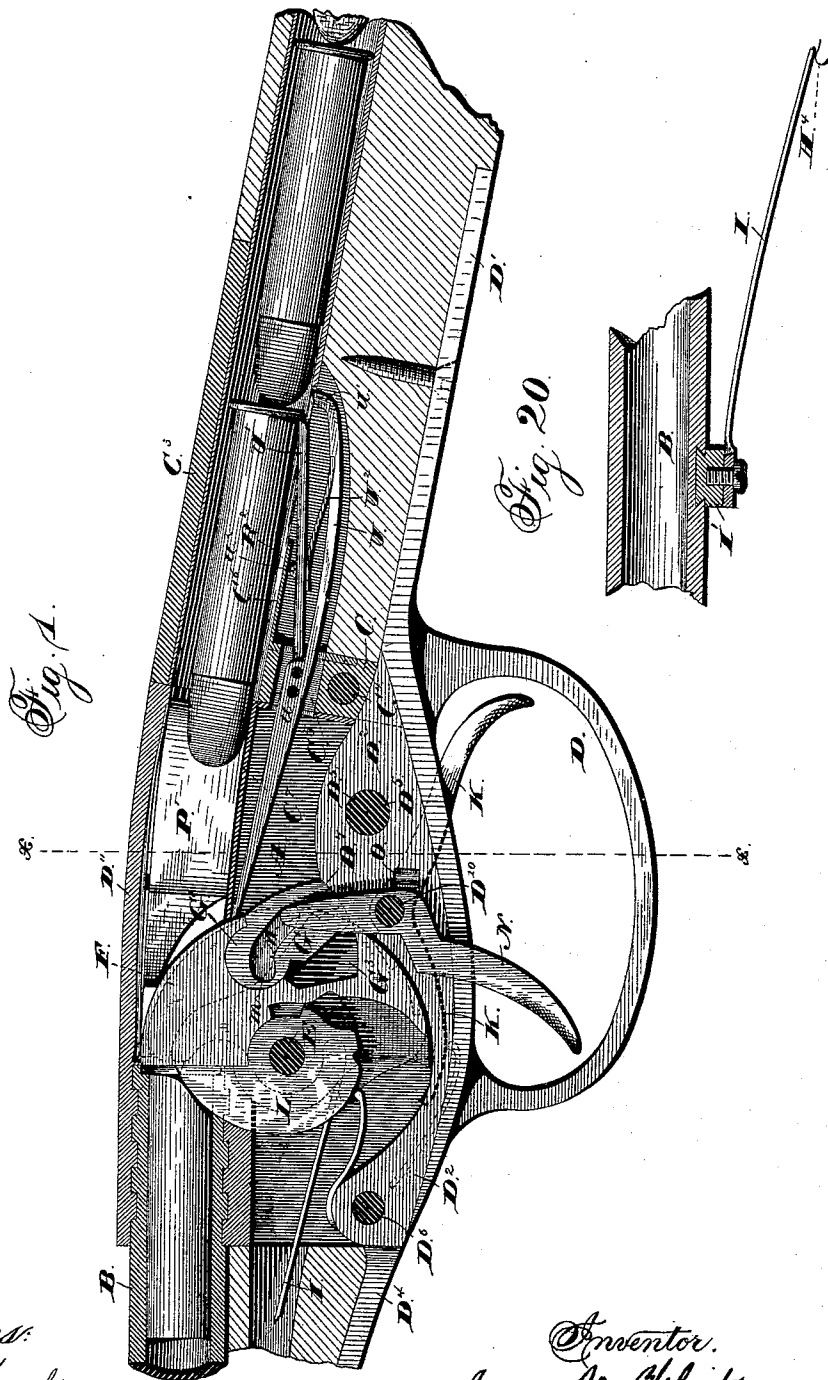
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5 Sheets—Sheet 1.

J. M. WHITTEMORE.
MAGAZINE GUN.

No. 572.919.

Patented Dec. 8, 1896.



Witnesses:

Jas. C. Hutchinson.
Henry C. Hazard.

Inventor.

James M. Whittemore
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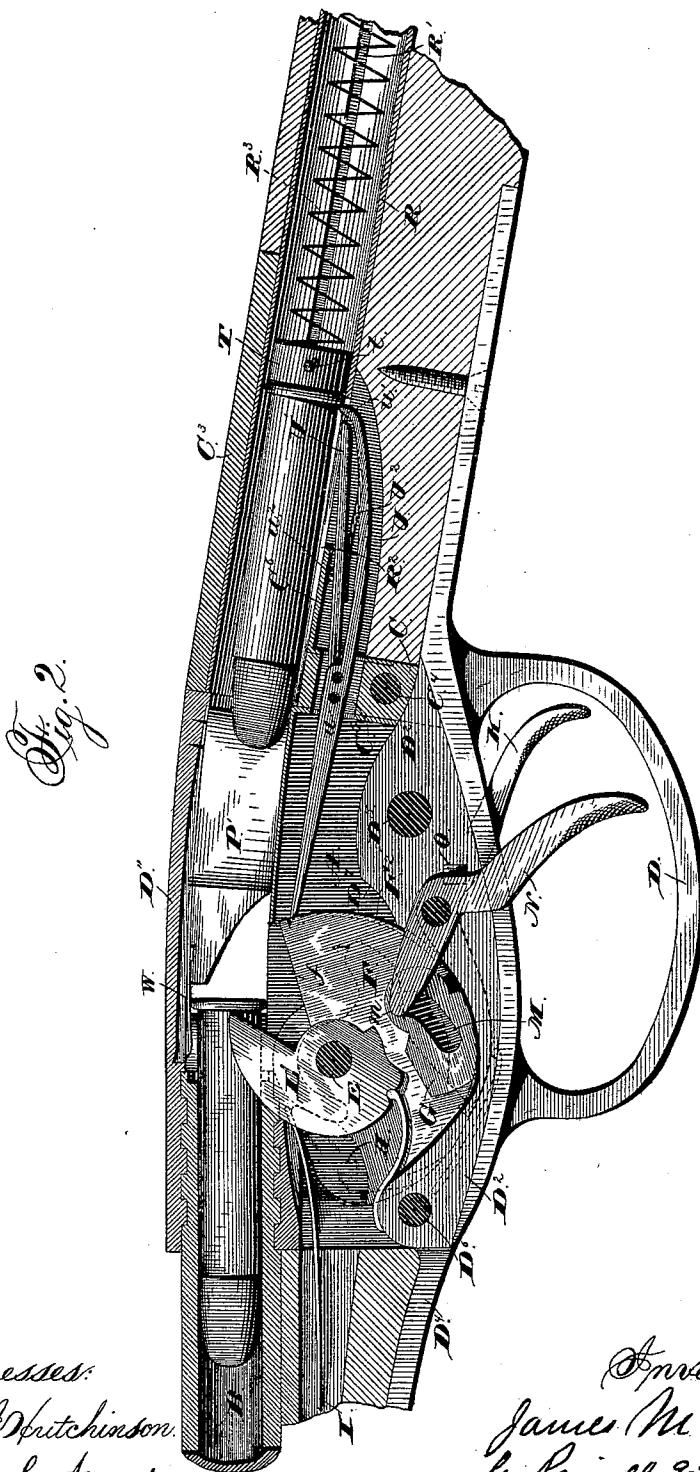
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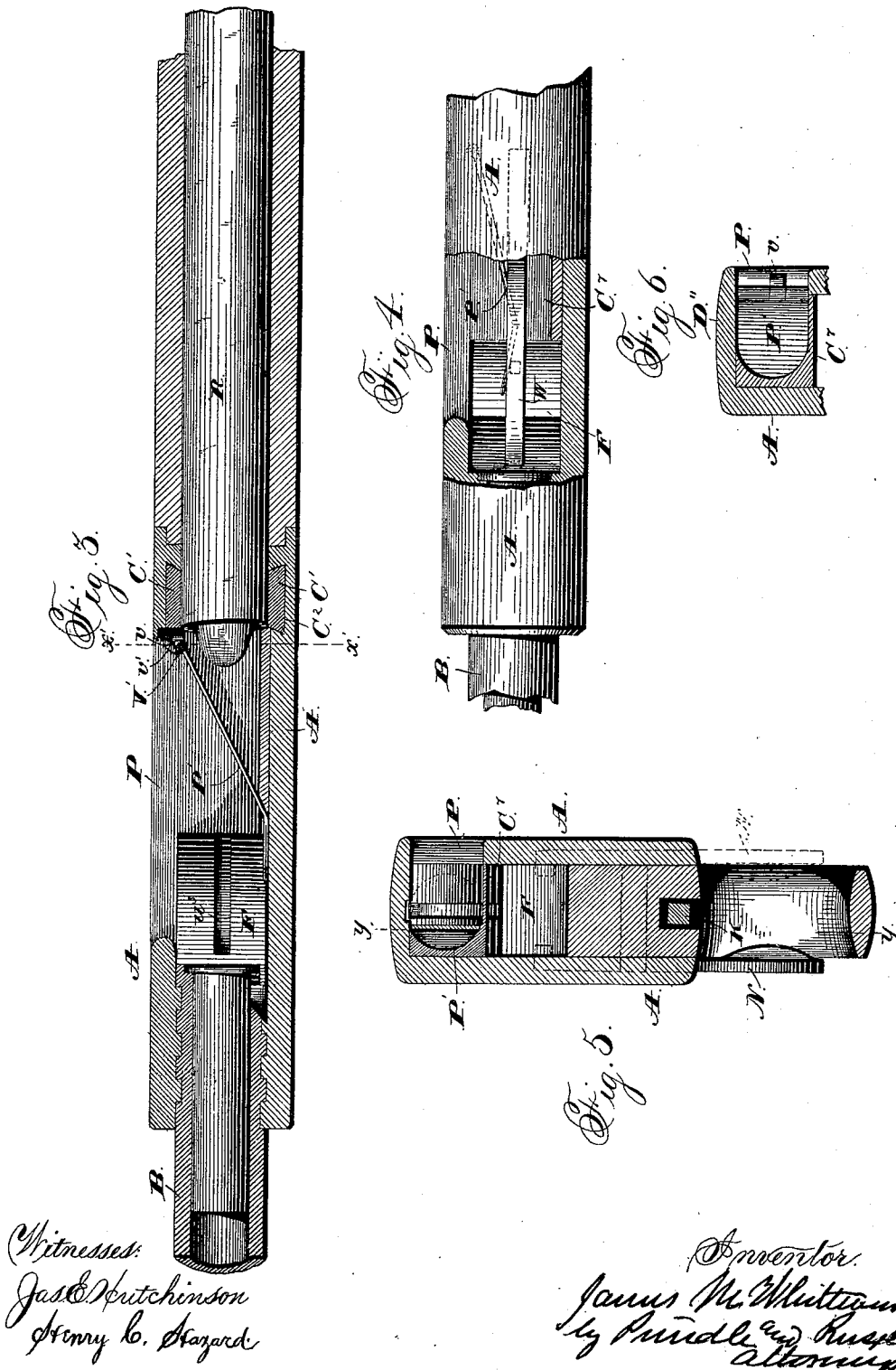
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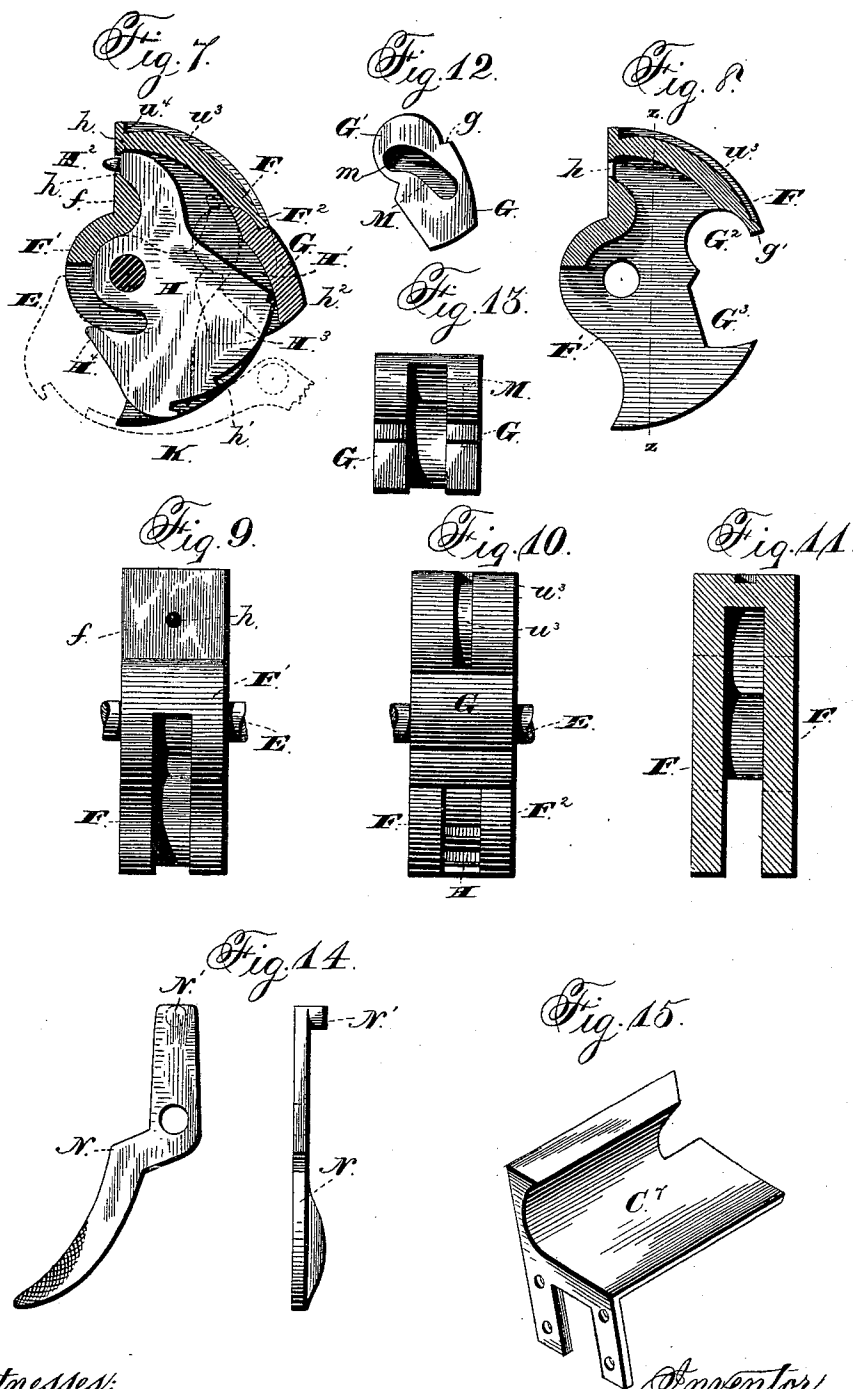
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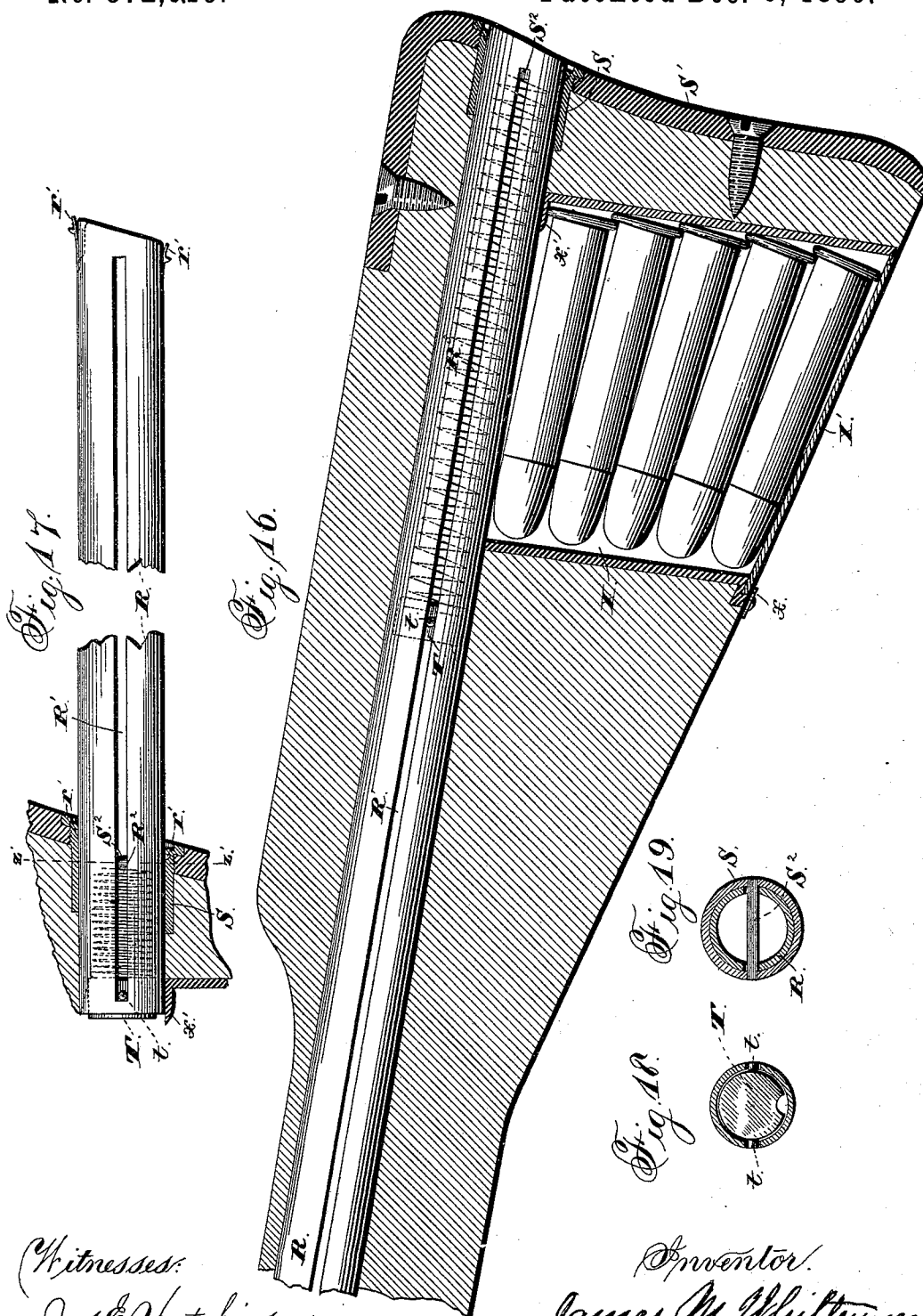
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5 Sheets—Sheet 5.

J. M. WHITEMORE.
MAGAZINE GUN.

No. 572,919.

Patented Dec. 8, 1896.



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UNITED STATES PATENT OFFICE.

JAMES M. WHITTEMORE, OF WASHINGTON, DISTRICT OF COLUMBIA.

MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 572,919, dated December 8, 1896.

Application filed July 11, 1885. Serial No. 171,330. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. WHITTEMORE, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Firearms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a view in side elevation of the breech mechanism of my gun with the side of the receiver removed and the front portion of the stock in central longitudinal section; Fig. 2, a similar view with breech mechanism revolved down and the various parts in position as when a shell has been ejected and a new cartridge thrown into place ready for firing; Fig. 3, a plan view of the breech portion and the forward part of the stock of my gun, the upper portion thereof being removed to show the containing mechanism and construction clearly; Fig. 4, a detail plan view of the breech portion of the gun with a part of the top of the receiver broken away; Fig. 5, a transverse vertical sectional view on line $x x$ of Fig. 1; Fig. 6, a detail sectional view on line $x' x'$ of Fig. 3; Fig. 7, a detail vertical sectional view of the breech-block and locking-brace on line $y y$ of Fig. 5, showing the hammer in place; Fig. 8, a similar view of the breech-block alone; Fig. 9, a detail view of the breech-block in front elevation; Fig. 10, a detail view, in rear elevation, of the breech mechanism; Fig. 11, a transverse vertical section of the breech-block on line $z z$ of Fig. 8; Fig. 12, a detail view, in side elevation, of the locking-brace; Fig. 13, a detail view, in front elevation, of the same; Fig. 14, detail views, in side and rear elevation, of the breech-block lever; Fig. 15, a detail perspective view of the bridge-piece for guiding the cartridge from the magazine; Fig. 16, a vertical longitudinal section of the stock, showing the magazine therein; Fig. 17, a detail view, partly in section, showing the magazine-tube drawn out; Fig. 18, a transverse section of the magazine-tube, showing the follower therein; Fig. 19, a transverse section of the magazine-tube and the tube-holding thimble on line $z' z'$ of Fig. 17; Fig. 20, a detail view showing the manner and means of fastening the mainspring in place.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to provide an improved magazine-gun; and to this end my invention consists in the construction, arrangement, and combination of parts, as hereinafter described, and more specifically pointed out in the claims.

In the drawings, A designates the receiver of the gun, into the forward and upper part of which is screwed in the ordinary way the breech or rear end of the barrel B. Below the portion into which the barrel is screwed the receiver is milled out to the full width of the space within the main portion of the receiver. The top of the receiver is closed, as shown, the whole lock and breech mechanism, as will be described hereinafter, being introduced from below when the parts of the gun are being assembled.

For enabling the stock to be properly and most strongly attached to the receiver I provide the block C, having down along each side a dovetailed rib C^1 , fitting in a correspondingly-shaped groove C^2 in the side of the receiver. From the front end of the block the upper tang C^3 extends rearward, being adapted, as usual, to fit into a suitably-shaped longitudinal recess or rabbet in the grip portion of the stock. In putting the gun together this block is slid down into place between the rear ends of the receiver sides with the dovetail projections fitting in the grooves $C^2 C^2$. The screw-pin C^4 is then passed through one of the receiver sides and the block C and screwed into the opposite side of the receiver. Thus the block with its tang is most strongly attached to the receiver.

As shown in the drawings, the guard D, which fits up between the lower portions of the receiver sides, is made in one piece with the rear lower tang D^1 and the forward tang D^2 ; also, preferably formed in one piece with this guard is the block D^3 of the full width of the receiver-space and provided with the recoil-surface D^4 on its upper side near its rear end. Through the receiver sides and this block, just in rear of and below the recoil-surface, passes the large screw-pin D^5 , fastening the block most firmly and strongly in place. Through the receiver sides and the

front end of the block D^2 another fasteningscrew or screw-pin D^6 passes. Upon the pin E , passing through the receiver, is the breech-block F , having the forward concentric pivotal portion F' of small diameter and the large main portion F^2 also concentric with reference to the center of motion of the breech-block. At the upper and forward portion of the breech-block the two concentric portions F' and F^2 are connected by a plane or flat surface f , adapted to fit squarely against the rear end of the barrel when the breech-block is swung up and forward, as shown in Fig. 1, to properly hold and confine the cartridge in the chamber in the barrel.

The locking-brace G has on its upper end the transverse pivotal head G' , more than a semicylinder in extent. As shown in the drawings, it is about two-thirds of a cylinder. The lower end of this brace is curved on an arc described from the axis of rotation of the pivotal head. This head of the brace is fitted into the socket G^2 in the rear portion of the breech-block, preferably above the level of the center of movement of the breech-block. This socket is of such extent as to embrace an amount of the pivotal head greater than a semicylinder. When, then, the head is inserted from the side into place in the socket, it cannot be removed therefrom except by sliding it out to one side of the block, while it is free to rock or rotate a short distance in the socket. The amount of rotation of the head, and so of the motion of the locking-brace, is determined by the brace below the head coming into contact with parts of the breech-block, as shown in the drawings. For instance, the rearward swing of the brace is limited by the shoulder g on the brace striking the shoulder g' or the lower edge of the portion of the breech-block forming the rear side of the socket G^2 . The breech-block is below socket G^2 , recessed at G^3 , so as to allow the locking-brace to be swung inward and forward, as shown in the drawings.

The rear side or face of the locking-brace from the rear edge of the curved bearing-surface on its lower end is curved with the same curvature as the rear side of the breech-block, so that when the brace is swung in it is flush with such rear side of the block and the curves coincide.

The recoil-surface D^7 on the block D^2 is curved on an arc described from the center of motion of the locking-brace when the breech-block is swung up and with the radius of the curvature of the surface on the lower end of the brace. From the forward edge of the recoil the upper face of block D^2 is concaved or curved downward and then upward on an arc described from the center of motion of the breech-block with the radius of the block. With this construction, when the breech-block is swung up, as in Fig. 1, and the brace is swung out, the lower end of the latter rests squarely against the recoil-surface in the most advantageous way to pre-

vent rotation of the block backward on its pivot-pin E . The brace cannot swing farther back and up on its pivot because of shoulder g striking shoulder g' ; but when the brace is swung in to bring it flush with the curved rear face of the breech-block the block can be freely rotated on its pivot, so as to open the breech.

The thickness of the breech-block and the locking-brace from side to side is preferably made about nine-tenths of an inch, but can be made less or more, as desired.

The hammer H , also pivoted on pin E , is preferably about three-tenths of an inch thick and is situated and swings in a central recess H' within the breech-block, cut or milled out at right angles to the axis of motion of the block. The rear side of this recess is curved so as to be just cleared by the upper end of the hammer in all the movements of the hammer or block. The forward or inner side of the locking-brace is also centrally and vertically recessed for the same purpose. The upper or striking end of the hammer is provided with conical firing-pin H^2 , adapted to project through opening h in the abutting face f of the breech-block far enough to fire the cartridge when the hammer is thrown forward to the limit of its motion. The part of the hammer below the firing-pin then abuts against a solid portion of the breech-block in front of it, as shown. The hammer, as indicated above, is pivoted upon the same pin with the breech-block.

The hammer-cam H^3 is carried well to the rear, so as to engage with its heel the solid portion of the locking-brace at the outer or rear side of the recess in the brace when the breech-block is up, the brace out, and the hammer swung forward. The engaging portion of the heel of the hammer-cam is then near the lower end of the brace. As then the brace is swung inward on its pivot the hammer-cam is pressed forward, withdrawing the upper or striking end of the hammer from the front of the breech-block. During this movement the engaging corner or edge on the heel of the cam passes down off the brace and the forward edge of the lower end of the engaging portion of the brace, cut away slightly, as shown, comes into engagement with the rear side of the hammer-cam. As the locking-brace is now swung in off the recoil-surface the breech-block is free to be rotated and the brace and the hammer will move with it.

The mainspring I is fastened at its forward end to a block I' , which is attached to the barrel, as shown. The rear end of the spring engages the projecting portion H^4 on the hammer-cam. To allow for the necessary play of the end of the spring as the hammer is revolved back and the projecting portion consequently swung forward and upward, I recess or cut away a portion of the cam above such projecting portion. The hammer-cam H^3 is provided with the locking or safety

notch h' , the firing-notch h^2 , adapted to be engaged by the nose of trigger K when the hammer is partially revolved back, and the full-cock notch h^3 , adapted to be engaged by the end of the trigger when the hammer has been fully revolved back. The safety-notch h' is so situated as to be engaged by the trigger as the hammer is revolved by the motion of the locking-brace, as indicated above, before the brace swings off of the recoil surface or bearing D^7 . This is very desirable, for a reason to be set forth hereinafter. It is pivoted upon the same pin E with the breech-block and hammer.

The receiver, just below the rear end of the barrel, is cut away on a curve whose arc is concentric with the pivotal portion F' of the breech-block, so that such portion rotates close to the lower edge of the barrel and a close joint is made to prevent dust or dirt getting down into the receiver-chamber in front of the breech-block.

In the side of the locking-brace G, I cut the groove M, whose lower portion is straight, or nearly so, and inclined toward the outer lower corner of the side of the brace. This groove extends up into the side of the pivoted head portion G' , and near such upper end it is curved to the front, so as to form a shoulder m .

Pivoted on the same pin D^{10} with the trigger is the lever N, preferably situated and playing or swinging in a rabbet or recess in the inner face of the receiver side. If desired, both the receiver side and the block D^2 can be recessed to allow for the play of the upper portion of this lever. Upon this lever, at its upper end, is the stud or pin N' , fitting and playing in the groove M in the brace. When the breech-block is swung up to close the breech and the locking-brace is swung out to lock the same, as shown in Fig. 1, the pin N' is at the lower rear end of the groove. If now the lower end of the lever be pulled back to swing the upper end thereof forward and downward, the stud or pin N' , engaging the front side of the groove, first causes the locking-brace to swing inward and forward until said brace is flush with the rear side of the breech-block. As the brace then bears against a portion of the breech-block the force of the pressure on the lever is then brought to bear upon the breech-block itself. During the inward swing of the brace the pin or stud on the lever has been swinging downward as well as forward. When the swing of the brace stops, the pin is in such position as to bring the force applied to the lever below the pivot of the breech-block. As the lever is further moved the lower portion of the breech-block will be forced forward, the breech-block being thereby rotated on its pivotal pin. As the breech-block in rotating approaches the end of its movement the pin or stud N' on the lever rides up in the groove M and engages the shoulder m at the side thereof. As the lever is swung further the pin bearing squarely against this shoulder

forces the block around to the limit of its motion. On account of the square bearing of the pin against this shoulder and the angle which the lever has assumed in its travel the power applied to the lever is utilized in the most advantageous way to overcome the stress of the mainspring. When the lever is first moved and swings the brace inward and forward, as described, the hammer is caused to rotate, as set forth hereinbefore, by the engagement of a portion of the brace with the heel of the hammer-cam. This retracts the firing-pin well from the front of the breech-block. When the brace is swung in and the breech-block is rotated, as described, the hammer is also rotated by the continued engagement of the brace with its cam until when the breech-block has been thrown fully back the full-cock notch on the cam is in position to be engaged by the sear or nose of the trigger. If now the pressure on the lever N is removed, the hammer will stay at full-cock and the breech-block can be thrown up again and locked by a reverse movement of the lever N, causing its pin or stud N' to engage the rear side of groove M; or, if the trigger be pulled without so swinging up the breech-block, the block will be quickly swung up into place by the hammer-cam engaging the brace, and the brace itself will be swung out into locking position before the firing-pin of the hammer can project beyond the face of the block, as will be readily understood from the drawings.

I contemplate, when desired, providing the lower end of the lever N with a ring instead of a mere finger-plate, as shown, to facilitate the moving forward of the lower end of the lever to close the breech, as described.

Instead of the groove in the locking-brace and the pin or stud on the lever the pin or stud can of course be put on the brace and a slot made in the lever to engage said pin without departure from the spirit of my invention.

In rear of the breech-opening lever and below its pivot is the recess O in the block D^2 , in which recess is placed the U-shaped spring, having one of its arms longer than the other and projecting beyond the side of the block, so as to engage the rear side of the lever. As the force of the spring is exerted through this arm upon the lever below its pivot said spring tends to keep the upper end of the lever swung back into the position shown in Fig. 1. This spring serves to keep the lever from rattling or swinging loosely and causes it to hold the locking-brace normally swung out into locking position, even when the heel of the hammer-cam is not in engagement with the brace. When the hammer is not revolved back at all, the heel of the cam of course holds the brace swung out in locking position with the force of the mainspring. As the half-cock or safety notch is so situated that the trigger engages it before the hammer has revolved far enough to allow the brace to swing

in entirely off the recoil-surface when the gun is being carried half-cocked, the hammer-cam will still prevent the brace from accidentally being swung inward off the recoil-surface to release the breech-block.

The extractor and ejector is constructed so as to be caused to extract and eject the shell from the chamber completely before the breech-block reaches the end of its downward swing.

The mechanism as so far described can obviously be very advantageously used for the breech mechanism of a single-loader.

The breech-opening lever is most conveniently situated to be operated by the finger directly after firing and is at the same time well protected by the guard.

No lock or stop for the concealed hammer, as in the so-called "hammerless" guns, is necessary.

If the hammer is at full-cock, it can be let down to the half-cock or safety notch by pulling the breech-lever back and then pulling the trigger to release the hammer. The latter can then be let down as slowly as desired by letting the lower end of the lever swing slowly forward until the trigger catches in the half-cock notch. If, then, the hammer is at half-cock notch, it be desired to fire the gun, the lever is pulled upon until the hammer is rotated far enough for the sear to drop into the intermediate firing-notch h' , and the gun can then be fired in the usual way by pulling the trigger. This intermediate notch is so situated on the hammer-cam as to come into position to be engaged by the trigger before the extractor is operated by the movement of the breech-block.

Like the gun covered by my application, Serial No. 140,740, a gun provided with the breech mechanism, as set forth and shown in this application, can be fired with the most absolute safety with the breech-block open or shut, as the block is always swung shut and locked by the action of the hammer on the brace and the hammer cannot reach and fire the primer until the block is locked.

A very rapidly-firing as well as safe gun is also secured by my construction, as after the gun has been fired a pull upon the breech-lever opens the breech and ejects the shell. A fresh cartridge can then be inserted and the trigger pulled without previous closing of the breech, or the breech can be closed by a simple pushing forward of the breech-lever.

Where the breech mechanism is to be used on a single-loader, the shape of the receiver can be changed to suit, the top D'' being left off and other means being provided for fastening the stock to the receiver. In the drawings, however, I have shown the breech mechanism as used in a magazine-gun.

As the shell is drawn and thrown out it is guided to one side out through the opening

P in the upper portion of the side of the receiver by the gate P' , to be hereinafter described more fully.

Through the upper portion of block C, as nearly as possible in line with the cartridge-chamber in the barrel, is an opening large enough to receive the forward end of the magazine-tube R, which extends rearward through the upper portion of the stock and at its rear end fits and is held in a thimble S, screwed into the butt-plate S' . The extreme rear end of the tube is preferably so shaped as to be flush with such plate, as shown. On the tube end are two or more spring-catches $r' r'$, adapted when the tube is in place to engage suitable notches in the thimble to hold the tube securely in place and prevent its sliding out through the thimble. The rear end of the thimble is recessed, so as to admit of the two spring-catches being operated at the same time by the thumb and finger to release the tube when it is desired to draw the latter out for the purpose to be described hereinafter.

I do not limit myself to the form of catch shown, nor to any particular form of means for fastening or locking the tube in place. A screw bolt or latch or any form of lock may be used, as desired.

The tube is provided with the diametrically opposite longitudinal slots $R' R'$, extending along its sides nearly to its ends. At its front end it is slotted along its bottom for some distance, the forward end of slot R^2 being open. Within this tube is the follower T, having the pins or lugs tt at its sides projecting into the slots $R' R'$. With this construction the follower is held from rotation as it is moved along the tube, and its forward movement is limited by the pins tt striking the ends of the slots $R' R'$. A bar S^2 , rigidly attached at each end to the thimble S, extends across the tube and through the slots $R' R'$ therein. The feed-spring R^3 bears at its rear end against such bar, which, while forming a bearing for the spring, also serves to keep the tube from any rotary motion in the thimble and forms a stop for the tube as it is pushed into place.

The thimble is of course not necessary, as the rear end of the tube could be supported and fastened in the butt-plate itself, and so could the bar S^2 . The follower T is grooved or notched longitudinally on its underside, such notch or groove coinciding with the slot R^2 in the magazine-tube. Below the tube-opening in block C is another smaller opening C^5 , through which extends the magazine stop-lever U, pivoted on pin u . The rear or operative end of this lever is bent up to form a square or abrupt shoulder u' on its rear side and is situated just below the rear end of slot R^2 in the magazine-tube, so that when the rear end of the lever is swung up, as shown in Fig. 2, it projects up into the tube far enough for such

shoulder to engage the flange of a cartridge in the tube and hold the cartridge against the stress of the spring.

Attached to block C is the plate C⁶, extending rearward a short distance under the magazine-tube. This plate, which may be merely an arm, forms a bearing for the pin or stud u^2 on the lever U', pivoted to lever U at a point to the rear of the pivot u of such lever. A spring U² between the two levers tends to force their free ends apart. As, however, the upward swing of lever U' on its pivot is limited by the stud u^2 bearing against the plate C⁶, the lever U is swung downward by the stress of the spring and normally kept in the position shown in Fig. 1, with its rear end below the magazine-tube. As the lever U' is pivoted, as described, to the rear arm of the lever U, this downward swing of the latter lever lowers the forward or pivotal end of lever U' and allows its rear end to rise up, so as to project through slot R² up into the tube in position to engage the flanges of a cartridge therein and hold it from forward movement, as shown in Fig. 1. With this construction, with the parts in position as shown in Fig. 1, if the forward end of lever U be thrown down the rear end rises, the lever U' is swung down to release the flange of the front cartridge, which is then thrown forward out of the tube, and the shoulder on the rear end of lever U rises up quickly into position to catch the flange of the next cartridge to retain it. If lever U be now released, the spring U² throws its rear end downward to release the cartridge-flange and causes the end of lever U' to rise up quickly to catch the same cartridge-flange and hold it as it did the flange of the first one. The follower T is grooved on its under side, so that it will not be caught and stopped by either of the levers of the stop.

To the front side of block C is attached the bridge-plate C⁷, whose upper surface forms a continuation of the bottom of the engaging tube, so that the cartridges thrown from the front end of the tube will slide over it and into the chamber in the barrel when the breech-block is down, as shown in Fig. 2. This plate extends up close to the rear of the breech-block and on the left side is rounded up and over, so that its inner face forms a continuation of the side of the magazine-tube. The forward end of the stop-lever U projects into a shallow groove w^3 in the rear side of the breech-block. The upper end of this groove, forming an engaging shoulder w^4 , is so situated that as the breech-block reaches the end of its motion backward and downward and its upper edge has passed below the bridge-plate the stop-lever will be engaged and operated by the abrupt groove end to allow a cartridge to be thrown from the magazine-tube over the bridge-plate into the chamber. This operation of the stop takes place after the extractor and ejector has completed its action.

To guide the ejected shell out through the side opening P, I provide the light gate P', made of a thin plate of metal, pivoted at its rear end on a vertical pin V' at or near the rear end of the opening. An arm v on the pivoted end of this gate is engaged by spring v' in such a manner as to tend to keep the gate swung inward normally, as shown best in Fig. 3. The forward end of the gate is undercut, as shown, so that it can always swing without being struck or engaged by the breech-block. As this gate is normally kept swung inward it is in position to guide the shell out whenever the latter is ejected. After such ejection, as a cartridge is released and thrown forward from the magazine, as described, it swings the gate outward, which it can easily do on account of the lightness of it and the spring. Besides using the gate as a guide for the ejected shell I also propose to use it to keep the cartridge from falling back out of the chamber of the barrel if for any reason the breech-block should not be closed right away and the gun should be turned with the barrel up, or vertical. I therefore attach to the under side of the top D' of the receiver the rear end of the light spring W, whose front and free end is curved slightly downward at a point just in rear of the end of the barrel and then upward, so that its extreme end cannot be caught by the flange of a shell being extracted from the barrel. I prefer to recess the receiver-top to allow play of the spring. On the lower side of this spring is a small lug or stud w , inclined on its inner and abrupt on its outer side.

When the gate is swung out by the passage of a cartridge behind it, as described, its upper edge engages the inclined inner side of this lug w , raises it and the spring, and then swings beyond it. After the cartridge has passed, the gate swings part way inward again, but is engaged and held midway by the abrupt side of the lug on the spring. The front end of the gate will then stand behind the cartridge so as to prevent its falling back so far that the breech-block in rising would not force it into its chamber. When the breech-block is thrown up, its upper edge engages the bend in the spring, and so forcing the spring upward raises lug w and releases the gate, which then swings to its normal position diagonally across the receiver.

If it be desired, the magazine-tube can be filled from the front. To allow of this, the gate is swung outward by taking hold of its front end. The cartridges can then be fed into the tube. I provide also another way of charging the tube and means for carrying a further supply of cartridges than could be placed in the tube. In the stock near its butt-end I provide a supplemental box-magazine X, substantially at right angles to the magazine-tube. In this magazine the cartridges lie upon each other substantially parallel instead of end to end, as in the tube. The inner end of this supplemental magazine is nor-

mally closed by the tube R. The outer end is to be closed by any desired form of door or slide which can be opened to allow of the introduction of the cartridges and then closed securely. In the drawings I show one form of door, which is a plate X', hinged at one end and fastened at the other by means of a small turn-button x . In this supplemental magazine the cartridges lie on top of each other with the flange of each succeeding outer one overlapping or behind that of the next inner cartridge. At the inner rear corner of this magazine is a lip or ledge x' . If it be desired to load the magazine-tube from this supplemental magazine, the gun is turned so that the latter is upward. Then the catches at the rear end of the magazine-tube are disengaged and the tube is drawn out into the position shown in Fig. 17. As the tube is drawn out the follower is drawn back with it, because of the pins t engaging the forward ends of slots R' R', and the magazine-spring is compressed between the follower and bar S². When the tube has been drawn back far enough to open the inner end of the supplemental magazine, if the gun be held with its barrel inclined well downward the cartridges from the supplemental magazine will drop and slide down into the tube-passage in the stock, the front one being caught and retained by the magazine-stop described. The ledge or lip x' facilitates this filling of the tube from the magazine by retarding the fall of the rear end of each cartridge until its forward end has passed forward and downward some ways into the tube-passage. The tube is then pushed forward longitudinally into place, again taking up the cartridges successively as it is pushed farther in. To facilitate this taking up of the cartridges in the passage, a portion of the front end of the tube is beveled or inclined on its inner side, as shown best in Fig. 17. This is on the side of the tube which is uppermost when the gun is held in position for firing.

Where it is not desired to carry a gun with cartridges resting endwise upon one another, the tube need not be charged, but the cartridges may be kept in the supplemental magazine to be transferred quickly, as described, to the tube when the gun is to be used.

I contemplate making the supplemental magazine or chamber removable, to be replaced by another full magazine when it has been emptied, in the manner well known to those familiar with the manufacture and use of magazine-guns.

If, after a cartridge has been put in place in the chamber and the breech-block closed, it be desired to reserve the fire, the breech-lever is taken hold of and pulled back and the trigger is pulled. By means of the lever, as set forth hereinbefore, the hammer is then let slowly down until the sear enters the half-cock or safety notch. The gun can then ob-

viously be carried with perfect safety from accidental firing.

To put the gun in condition for firing by the trigger again, the breech-lever is simply pulled back until the trigger clicks into the intermediate notch. This can be done while the gun is at the shoulder, as in aiming, and the trigger can be immediately pulled to fire the gun, thus making the act of cocking and firing practically simultaneous and by substantially one movement, as one finger may engage the lever and another the trigger to operate the same.

With my construction, as described and shown, the gun can be fired repeatedly until the magazine is emptied without removing the butt from the shoulder. The breech-lever being close to the trigger is in position to be pulled without removal of the hand on the guard. A pull on the breech-lever opens the breech, cocks the hammer, ejects the cartridge-shell, if there be one in the chamber, and causes a fresh cartridge to be inserted in the chamber. A pull on the trigger will then cause the breech to be closed and locked and the hammer to fire the cartridge. My gun can then be loaded and fired with but two motions, or where it is desired to close the breech before pulling the trigger, with three motions. It can, moreover, be used as a single-loader and be fired as such very rapidly by three motions, a pull on the lever, inserting a new cartridge, and a pull on the trigger. The breech-lever can obviously be arranged on either side of the receiver. For convenience and clearness I have shown it on the left side, but prefer in making the gun to put it on the right side, as indicated in dotted lines in Fig. 5, as being then in somewhat better position for a pull.

Instead of having a pin on the lever engaging a groove on the locking-brace or a pin on the brace playing in a slot in the lever I contemplate, especially where the breech mechanism is to be used in a single-loader, having an arm or lug on the lever engage some part of the brace from the rear, so as to properly swing it and the breech-block.

Instead of having lever U' pivoted to lever U and a spring between them, as described, there can be substituted for the lever U' and the spring a flat spring attached to the lever U in rear of its fulcrum and at its free end adapted to project up into the magazine-tube in the same way as does lever U'. At its middle point this spring will either be provided with a bearing pin or stud to engage the plate in the same way and for the same purpose as the pin or stud on the lever U' or it will be formed with an upward bend or offset for the same purpose.

Instead of grooving the rear side of the breech-block, as described and shown, a shoulder or lug to engage and operate the magazine stop-lever may be put on or attached to the block, as desired.

Having thus described my invention, what I claim is—

1. In combination with the breech-block and the locking-brace pivoted thereto, the hammer having a portion adapted to engage the locking-brace when the breech-block is fully open, and move said brace to its locking position, substantially as and for the purpose specified.

2. In combination, with the breech-block and the locking-brace pivoted thereto, the hammer having its lower portion adapted to engage a part of the locking-brace to press the same toward a locking position, at any point in the hammer's movement from a full-cock, substantially as and for the purpose set forth.

3. In combination with the pivoted breech-block, the locking-brace pivoted thereto, the recoil-block and the hammer having the heel of its cam adapted at a full-cock position to engage the locking-brace to throw it out into locking position before the firing-pin projects from the breech-block face, substantially as and for the purpose described.

4. In combination with the pivoted breech-block and the hammer within the same pivoted on the same pin therewith, the locking-brace pivoted to the rear side of the breech-block adapted to be engaged by the heel of the hammer-cam, substantially as and for the purpose described.

5. In combination with the pivoted breech-block and the hammer within the same, the locking-brace pivoted to the block and engaged by a portion of the hammer, and means substantially as described for swinging the locking-brace on its pivot and rotating the breech-block, all substantially as set forth.

6. In combination with the breech-block and the locking-brace pivoted thereto provided with a groove, the lever provided with a stud or projection playing in the groove and a spring engaging the lever and tending to keep its upper end swung back to hold the brace in locking position, substantially as and for the purpose described.

7. In combination with the breech-locking mechanism and the unlocking-lever engaging and actuating such mechanism, the spring in the recess in the recoil-block having one arm engaging the rear side of the lever, substantially as and for the purpose described.

8. In combination with the locking-brace for the breech-block, the lever for operating the locking-brace, the spring bearing against a portion of the lever below its pivot so as to tend to normally keep the end of the lever, which engages the brace, swung so as to keep the brace out in locking position, substantially as and for the purpose described.

9. In combination with the pivoted breech-block, the recoil-block behind the same having a recoil-surface, the locking-brace pivoted to the breech-block adapted to rest on the recoil-surface when swung out, the hammer within the breech-block, engaging the breech-

block with the rear or heel portion of the cam, and the lever provided with a stud or arm engaging a groove in the side of the brace, substantially as and for the purpose described.

10. In combination with the breech mechanism adapted to retract and swing the hammer back as the breech is unlocked and opened, the trigger and the hammer provided with a safety-notch, a full-cock notch and an intermediate firing-notch adapted to be engaged by the trigger nose or sear before the breech mechanism has moved far enough to operate the extractor, substantially as and for the purpose described.

11. In combination with the recoil-block provided with a recoil-surface, the pivoted breech-block, the locking-brace pivoted thereto, means substantially as described for limiting the swing of the brace with reference to the breech-block, a lever provided with a stud engaging a portion of the brace, the hammer swinging within the breech-block, having the heel of its cam adapted to engage a portion of the brace and provided with a safety, a full, and an intermediate firing-notch, a suitable trigger to engage such notches and a main-spring to operate the hammer, substantially as and for the purpose described.

12. In combination with the magazine substantially in line with the chamber of the gun, and a suitable spring-feed mechanism within the magazine, the swinging breech-block, the magazine-stop and a shoulder on the block adapted to engage and operate the lever of the stop, substantially as and for the purpose described.

13. In combination with the magazine so arranged and constructed as to throw a cartridge forward into the chamber in the barrel, a bridge-piece extending between said magazine and said chamber adapted to support and guide the cartridge in its passage from the magazine into the chamber, substantially as and for the purpose described.

14. In combination with the magazine, substantially in line with the chamber in the barrel and the spring-feed mechanism within the magazine, the pivoted breech-block having a groove in its rear side, and the magazine-stop operated by the lever-arm projecting forward into the groove and engaged at its forward end by a shoulder on the block at the end of the groove when the latter is swung back and down to open the breech, substantially as and for the purpose described.

15. In combination with a magazine a magazine-stop consisting of the lever having one end adapted to project into the magazine in position to engage a cartridge-flange, a lever pivoted to the former lever at a point between its pivot and its cartridge-flange-engaging end, a spring between the levers, and a rigid bearing for the second lever between its pivot and its free end, substantially as and for the purpose described.

16. In combination with the magazine the lever having one end adapted to be projected

into the magazine, the second lever between such lever and the magazine pivoted to the lever at a point between its pivot and its end, the spring tending to force the free ends of the levers apart and the fulcrum-bearing for the second lever, substantially as and for the purpose described.

17. In combination with the breech and ejector mechanism, the swinging gate normally standing at an angle behind the breech mechanism in position to guide the ejected shell out to one side, substantially as and for the purpose described.

18. In combination with the breech and ejector mechanism and with the magazine having its mouth substantially in line with the breech-chamber, the gate adapted to stand normally at an angle across the space between the breech-chamber and magazine, and a spring tending to keep the gate in its normal position, substantially as and for the purpose described.

19. In combination with the swinging gate, the arm thereon and the spring engaging such arm adapted to swing the gate normally inward to stand at an angle behind the breech, substantially as and for the purpose described.

20. In combination with the magazine having its mouth substantially in line with the breech-chamber in the barrel, the swinging gate, the spring adapted to keep it normally swung so as to stand at an angle across the space between the magazine and chamber and a spring-latch adapted to engage the gate when it has been swung outward, and to hold it from returning to its normal position until the latch is raised, substantially as and for the purpose described.

21. In combination with the gate and the spring mechanism tending to swing it inward across the passage between the magazine and the breech-chamber, the spring above the gate having the lug or pin adapted to ride up over the edge of the gate as the gate swings outward and to engage and hold it as it swings inward, and the breech-block adapted when it rises to close the breech to engage the spring, to cause the pin or lug to release the gate, substantially as and for the purpose described.

22. In combination with the gate normally kept swung in position to guide the ejected shell out to one side, and adapted to be swung outward by the passage of a cartridge from the magazine into the chamber, a spring-latch mechanism adapted to let the gate swing outward and to engage it as it swings back and hold it with its forward end behind the cartridge in the chamber, and the breech-block adapted to operate the latch to release the gate as it moves to close the breech, substantially as and for the purpose described.

23. In combination with the slotted magazine-tube, the follower within the same having lugs or pins engaging the slots in the tube, the fixed bar passing through the tube and

the slots therein, and the spring in the tube between the follower and the fixed bar, substantially as and for the purpose described.

24. In combination with the tube adapted to be drawn out longitudinally, provided with longitudinal slots, the follower having projections extending into the slots in the tube, the fixed bar extending through the tube and the slots therein, and the spring between the follower and the bar, substantially as and for the purpose described.

25. In combination with the stock of the gun, the tube extending longitudinally through it provided with diametrically opposite longitudinal slots, the follower within the tube provided with lugs or projections engaging the slots in the tube and adapted to be engaged by the forward ends of the slots as the tube is pulled out, the fixed bar at the rear end of the stock passing through the tube and the slots therein and the spring in the tube between the follower and the bar, substantially as and for the purpose described.

26. In combination with the passage through the stock, the longitudinally-movable tube in the same provided with longitudinal slots extending nearly to its ends, the follower within the tube having arms or projections playing in the slots, the rigid bar passing through the tube and the slots near the rear end of the tube, the supplemental magazine-chamber opening into the tube-passage in the stock and suitable stop mechanism adapted to regulate the discharge of cartridges from the magazine-tube, substantially as and for the purpose described.

27. In combination with the longitudinally-movable magazine-tube, and the spring and follower within the same, means substantially as described, whereby the follower is drawn back by the drawing out of the tube and the supplemental magazine substantially at right angles to the tube-passage and near its rear end, so that its contained cartridges can be fed into the tube-passage when the tube is drawn out, substantially as and for the purpose described.

28. In combination with the magazine-tube passage extending longitudinally through the upper portion of the stock, the longitudinally-movable magazine-tube therein containing a suitable follower and feed-spring and the supplemental magazine in the stock, substantially at right angles to and opening into the magazine-tube passage near its rear end, adapted to hold a series of cartridges, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 29th day of June, A. D. 1885.

JAMES M. WHITTEMORE.

Witnesses:

WILLIAM FITCH,
HENRY C. HAZARD.