

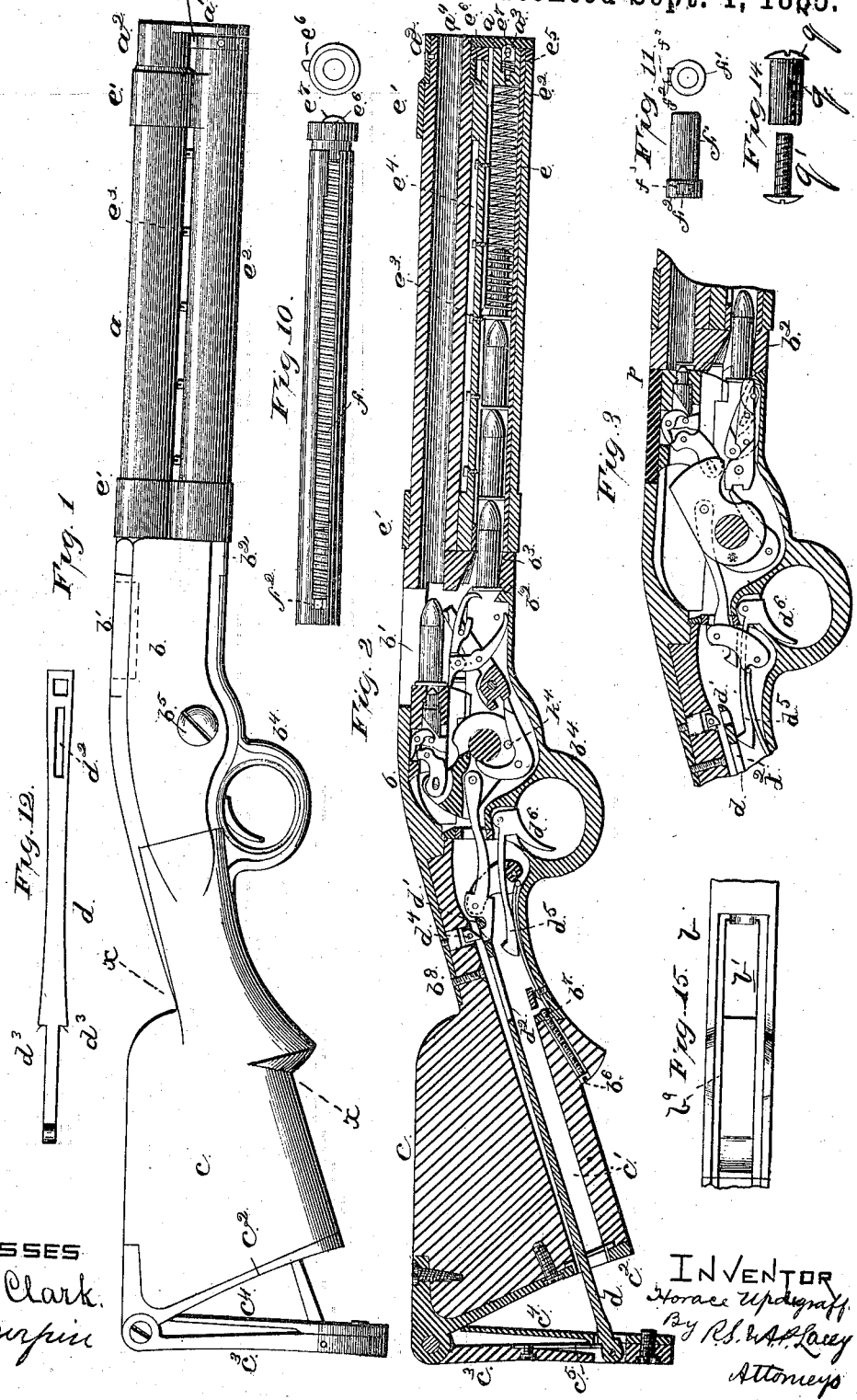
(Model.)

H. UPDEGRAFF. MAGAZINE GUN.

2 Sheets—Sheet 1.

No. 325,369.

Patented Sept. 1, 1885.



WITNESSES
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(Model.)

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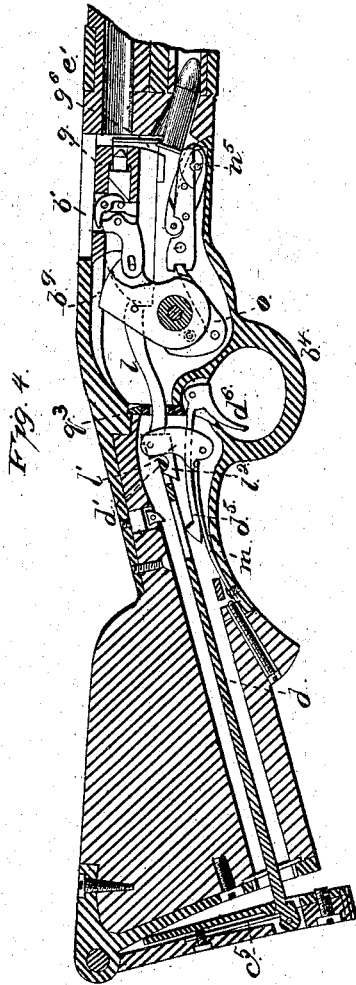


Fig. 4.

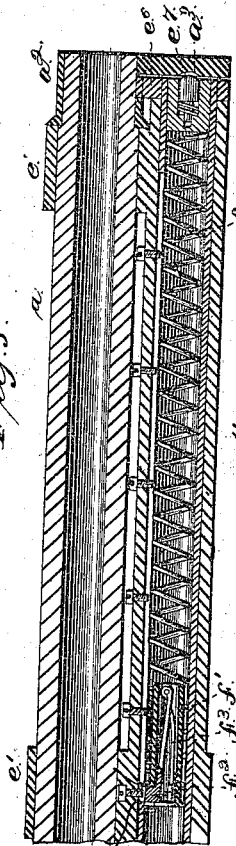


Fig. 5.

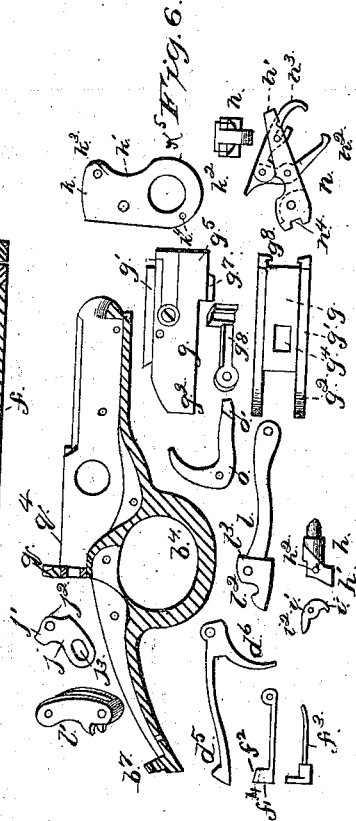


Fig. 6.

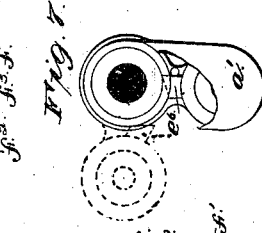


Fig. 7.

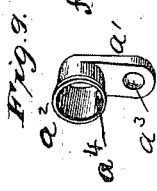


Fig. 9.



Fig. 13.



Fig. 8.

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UNITED STATES PATENT OFFICE.

HORACE UPDEGRAFF, OF HAMPTON, KANSAS.

MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 325,369, dated September 1, 1885.

Application filed February 9, 1884. (Model.)

To all whom it may concern:

Be it known that I, HORACE UPDEGRAFF, a citizen of the United States, residing at Hampton, in the county of Rush and State of Kansas, have invented certain new and useful Improvements in Magazine Fire Arms; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in magazine fire-arms, and has for its object to provide a gun which will be automatically reloaded the instant the discharged ball leaves the muzzle of the gun, and by which all the cartridges in the magazine may be fired without removing the gun from the shoulder or the finger from the trigger.

First. It consists in the utilization of the force of the recoil of the gun by means of a yielding shoulder-bar, so arranged with intermediate mechanism as to engage and give the varied necessary movements to its breech-block in reloading the gun.

Second. It consists in mechanism whereby the loading of the gun may be effected instantly by the movement of a single thumb or finger lever arranged near the butt-end of the stock.

Third. It consists in the construction and arrangement of the several parts whereby the invention set forth in paragraphs Nos. 1 and 2 in the statement of invention is carried out.

Fourth. It consists in a breech-block sliding to and from the breech of the barrel, and carrying the firing-pin and means for operating the latter.

Fifth. It consists in a carrier of peculiar construction and operation whereby the cartridge is lifted to the breech-block.

Sixth. It consists, further, in the construction and combination of the several parts whereby the breech-block and the carrier are operated.

Seventh. And it consists, further, in the construction, combination, and co-operation of the various parts whereby the principal and subordinate objects of my invention are

carried out, all of which will be hereinafter minutely described.

In gunnery the recoil takes place the instant the ball leaves the muzzle of the barrel. The gun may be reloaded the instant of the recoil without danger to the gun or to the operator. By my invention I have provided means whereby this reloading may be done the instant of the recoil and by the force of the latter. The force of the recoil in ordinary fire-arms is from sixty pounds to one hundred pounds, and is amply sufficient when utilized to operate the firing mechanism of my invention.

In the drawings, Figure 1 is a side view of my improved gun. Fig. 2 is a vertical longitudinal section of same with the parts in position for firing. Fig. 3 is a detail vertical section, showing the firing mechanism in the firing position. Fig. 4 is a detached section showing the position of the parts while being drawn back after the gun has been fired. Fig. 5 is a detached section of the gun-barrel and magazine. Fig. 6 is a view showing the main frame and the firing and reloading mechanism in detail. Fig. 7 is a view of the muzzle end of the gun, the retaining-plate being partly broken away. Fig. 8 is a transverse section of the magazine and its casing. Fig. 9 is a detail view of the retaining-plate. Fig. 10 is a detail view of the magazine. Fig. 11 is a detail view of the plunger, showing the same enlarged in plan and in end view. Fig. 12 is a plan view of the draw-bar. Fig. 13 is an under side view of the breech-block. Fig. 14 is a detail view of the fastening bolt or pin. Fig. 15 is a detail view of a detached section of the main frame looking upward.

a is the barrel of any ordinary form having at its muzzle a depending retaining-plate, *a'*, the function of which will hereinafter be more particularly described. The plate *a'* is preferably provided with a sleeve, *a''*, which slips onto the muzzle, to which it is held by a screw or other suitable means. The plate *a'* is arranged at the muzzle of the barrel in order that the magazine, hereinafter described, may have the greatest possible length. If a short magazine were used, the plate would be slipped farther toward the breech. I do not limit myself to the location of said plate at and flush with the muzzle, as shown in the drawings.

The plate *a*' is provided on its inner face with a small recess, *a*², adapted to receive the head of a small catch and lock the magazine in place. On the under side of the sleeve *a*² there is formed a small slot or opening, *a*¹, for purposes hereinafter stated.

b is the main frame for holding the firing mechanism. The breech of the barrel is secured to the frame. In the upper edge of the frame there is formed an exit slot or opening, *b*¹, through which the shells of exploded cartridges are thrown out. The frame has its lower edge extended below the barrel, and has in its forward end, *b*², an inlet-opening, *b*³, through which the cartridges are received from the magazine. The under side of the frame is slotted, as in ordinary guns, to receive the trigger-guard, *b*⁴. The trigger-guard is held in place by its forward end engaging on a shoulder on the end *b*² of the frame and by the bolt *b*⁵, put through the frame *b*. The stock is suitably fitted to the rear end of the frame *b*, and is held in place by a screw, *b*⁶, inserted therein and engaging a boss, *b*⁷, on the rear extension of the trigger-guard, and by a screw, *b*⁸, inserted through the stock and tail-strap of the frame. The trigger guard *b*⁴ is, in fact, a supplemental frame, which fits within the main frame and is adapted to carry all the firing mechanism, aided by the main bolt *b*⁵. By removing the bolt *b*⁵ and loosening the screw *b*⁶ the trigger-guard and its attached firing mechanism can be removed from the frame.

The stock *c* has a longitudinal mortise or passage, *c*¹, formed from its rear end to its front end and near its lower edge, and it has a butt-plate, *c*², fixed to it and provided with an opening coinciding with the opening *c*¹, as shown.

To the upper end of the butt-plate *c*² there is hinged or pivoted a recoil-bar, *c*³, which has on its inner face a retracting-spring, *c*⁴, which throws the said bar back after it has been pressed up against the butt-plate. *c*⁵ is a small depressing-spring, fixed to the recoil bar and arranged and adapted to depress the draw-bar *d*.

The draw-bar *d* has its rear end pivoted to and near the lower end of the recoil-bar *c*³, and its other end extends through the mortise *c*¹ and into close proximity to the firing mechanism. It has a catch, *d*¹, at its forward end, and a slot, *d*², just in rear of the catch *d*¹. Near its rear end it is provided with one or more shoulders or projections, *d*³, which prevent its being drawn too far back by the recoil-bar *c*³.

An anti-firing shoulder, *d*⁴, is fixed to the stock within the mortise *c*¹ and above the forward end of the draw-bar *d*. It prevents the draw-bar from being pressed upward by the trip-arm *d*⁵ of the trigger *d*⁶ until the instant the firing mechanism is drawn back in position to be fired, all of which will be fully explained hereinafter. The shoulder *d*⁴ is preferably pivoted, so that it will swing readily forward toward the firing mechanism when

pressed on its rear side, but will stand firmly in a vertical position when pressed upon its front side. Its front side is slightly beveled, as shown, so as to permit the draw-bar to slide readily upon it.

e is the magazine, supported by the barrel, so that it will turn readily to one side. It is made preferably about the same length as the barrel, in order to give it greater capacity for cartridges. Its rear end fits snugly against the lower part, *b*³, of the frame and its end abuts against the retaining-plate *a*¹, which holds it firmly against the extension *b*³.

The magazine is held in place by the carriers *e*¹ *e*² supporting its ends, and sleeved and turning upon the barrel. I make the magazine open at its rear end and closed at its outer end. This is done in order that it may be filled from the rear end by any suitable means. The magazine may be fixed rigidly to the carriers *e*¹ *e*², but I prefer to support it therein, so that it will turn independently thereof. I will now describe this particular construction.

I provide a cylinder, *e*³, which incases the magazine. Instead of a cylinder a single bar extending from one carrier to the other would answer the special purpose for carrying a series of small pins, *e*⁴, which project through a longitudinal slot, *e*⁵, formed in one side of the magazine. I prefer to use a tight cylinder, as shown, in order to give perfect protection to the magazine against water. In this construction the magazine has a slight turning motion within the cylinder *e*³, the degree of turning being limited by the width of the forward end of the slot *e*⁵ and check-pins *e*⁶.

On the outer end of the magazine a rim, *e*⁷, is rigidly fixed, which has on one side a short lug, *e*⁸, which is adapted to enter the slot *a*¹ in the sleeve *a*², or when drawn out of said slot to rest on the periphery of the said sleeve. If the plate *a*¹ were made fast by other means than by the sleeve *a*², I would in that case form a small slot or indentation in the barrel answering to the slot *a*¹ in the said sleeve. It will be seen that when the magazine is turned out, as shown in dotted lines in Fig. 7, the lug *e*⁸ is drawn out of notch *a*¹, and slides on the periphery of the sleeve. The length of the lug being greater than the distance between the magazine and the barrel, it must of necessity be forced to one side in order to permit the lateral movement of the magazine. The lug becomes a lever for giving the requisite rotary movement. The two positions of the lug are shown in Fig. 7. The full lines show it in the notch, and the dotted lines resting on the periphery of the sleeve. When the magazine is turned inward, the lug enters the slot, and the magazine is turned thereby back to its first position. This rotating movement is just sufficient to bring the pins *e*⁴ against one edge of the slot *e*⁵, when the magazine is turned outward, or brings the pins to the middle longitudinal line of said slot when the magazine is turned under the barrel.

A small spring-catch, *e*⁹, is placed in the

closed end of the magazine and is adapted to engage in the recess a^2 in plate a' and lock the said magazine, so that it cannot be turned outward by any reasonable ordinary pressure.

5 The catch has its end rounded so that it may be forced back by the inclined edges of recess a^2 when sufficient force is exerted to turn the magazine outward.

A coiled spring, f , is placed in the magazine 10 to press the cartridges toward the breech. A hollow plunger, f' , is held by the movable end of the spring and bears against the end of the cartridge. Within the plunger I place a catch, f^2 , projected upward from a head-piece, f^3 , 15 which has its shank or arm pivoted in the plunger and supported by a suitable spring. The catch projects upward through the slot and engages on one of the pins e^2 when the magazine is turned outward. When the maga- 20 zine is turned outward, as in Fig. 7, it is rotated and the catch is brought in line with and engages on the pin next in front of it, and the action of the spring f is thereby checked so that it cannot push the plunger against the 25 cartridges. When in this position, the plunger may be pushed toward the muzzle, and the catch is so formed and supported by its spring that it will be depressed and pass under the pin next in rear of it, so that as the cartridges 30 are inserted one after another the plunger will be forced back and will be held by the pin which it last passes. When the magazine is brought under the barrel, it is rotated in the opposite direction, and the catch is taken out 35 of line with the pins and the plunger is released and permitted to press the cartridges toward the breech. The catch f^2 is arranged at one side of the head-piece f^3 , and bears against one edge of the magazine next the slot. 40 A small guide, f^5 , is projected upward from the head-piece just opposite to the catch f^2 , and is so arranged as to provide between it and the catch a passage through which the ends of the pins e^2 will pass. The guide f^5 45 bears against the edge of the magazine, and it, together with the catch, holds the plunger from turning. This guide is shown in Fig. 5. It will be seen that the catch or pawl f^2 is less in width than the slot in the magazine, so that 50 when the latter is partially rotated it will pass the ends of the pins e^2 . The opening in the rear or breech end of the magazine coincides with front end of opening b^2 in the frame b . The opening b^2 is inclined slightly upward 55 and rearward, so as to give an upward movement to the cartridge as the latter leaves the end of the magazine.

The breech-block g rests and slides upon the upper edges of the trigger-frame. Longitudi- 60 nal rabbets g' are formed along its upper corners, which fit the guides b^2 on the main frame. Rear wings, g^2 , are provided, which extend back along the side of the pivoted loading-shoulder and cover the ends of the pin which 65 couples the pivoted hammer, hereinafter described, to the said pivoted shoulder. These rear wings could be dispensed with; but I pre-

fer to use them to give greater certainty in the operation of the breech-block and locking- 70 shoulder and to hold the said coupling-pin in place. The breech-block is slotted and recessed to receive the firing-pin, the return-lever for drawing back the firing-pin, and the hammer for driving the firing-pin into the cartridge. 75

The firing-pin h lies in the forward end of the breech-block, its rear end being located toward the rear end thereof. It is provided 80 with a lower extension, h' , which projects down into the slot g^2 of the breech-block, and is so arranged as to receive the force of the blow of the hammer. This lug or extension could be dispensed with and the mechanism 85 so arranged that the blow would be received on the rear end of the main part of the pin; but I prefer to use the extension, as thereby I economize space. The pin is provided with a retracting-stud, h^2 , upon which the end of the return-lever i engages.

The return-lever is pivoted above the rear 90 end of the firing-pin, and is provided with the wings i' and i^2 . The forward wing, i' , is slightly hook shape, and is adapted to catch over the stud h^2 on the firing-pin and draw the latter back into the breech-block in the 95 movement of the breech-block in reloading the gun. The upper or rear wing, i^2 , of the return-lever plays in a slot, g^4 , in the upper part of the breech-block where it can be seen by 100 the eye.

The hammer j is pivoted just in rear of the firing-pin, and is provided with an upper extension, j' , which engages on the under side 105 of the rear wing, i^2 , of the return-lever, and causes the latter to act upon and draw back the firing-pin. The point or angular portion j^2 is the hammer-head which strikes the rear end of the firing-pin and drives the latter into the cartridge. The rear end of the hammer 110 is provided with an elongated pin-opening, j^3 , for purposes hereinafter stated.

The breech-block has two forward extensions, $g^5 g^6$, which have formed on their inner 115 faces the vertical guide-channels $g^5 g^6$, which are slightly wider at their lower ends, as shown. Two depending lugs or stops, $g^7 g^7$, are provided just in rear of the channels to stop the rear movement of the cartridge as the latter is pressed out of the magazine. Just 120 above the extensions $g^5 g^6$, and in position to hold the cartridge in proper place to be fired, I place two spring-jaws, $g^8 g^8$, which grasp the said cartridge and hold it in position to secure the point of the firing-pin, as shown in Fig. 2. When the breech-block is drawn back, as 125 in Fig. 2, the hammer acts upon the return-lever which draws the firing-pin back, as shown in Fig. 2. When the gun is fired, the hammer clears the end of the rear wing of the lever, as shown in Fig. 3, and the firing-pin 130 is driven forward.

It will be seen that the hammer, as the breech-block moves forward, retains practi- cally the same position until such forward mo-

tion is completed. This position is such that the portion of the hammer above its pivot engages the upper or rear wing of the return-lever and holds the firing-pin back. At the instant the forward motion of the breech-block is completed, the lower end of the hammer is swung forward. This causes the cam-face of the hammer below its pivot to engage the rear extension of the firing-pin, and the latter is forced forward into the cartridge and the gun is fired. By this construction the firing-pin is locked in its position within the breech-block until the latter has completed its forward motion and the cartridge is forced into proper position for firing.

The locking-shoulder k is slotted longitudinally, and is pivoted on the main breech-pin. It has formed in its forward edge a concave recess, k' , and it has the circular edge k'' surrounding the breech-pin opening formed on the arc of a circle concentric with said pin-opening.

To the forward end of the breech-block and within the slot the rear end of the hammer is coupled or pivoted on the pin k^3 , which passes through the elongated opening j^3 .

A small pin or anti-friction roller, k^4 , is placed across and within the slot in the rear end of the locking-shoulder, for purposes which will hereinafter appear. The upper or forward end of the locking shoulder turns behind against a suitable bearing-surface on the breech-block, and locks the latter against the breech of the barrel.

A connecting-rod, l , has one end pivoted in the slot of the locking-shoulder and near the upper end of the latter, as shown, and has its other end extended back and pivoted to the upper end of the tumbler l' . The connecting-rod has a hooked extension, l'' , on which the catch d' on the draw-bar d will engage. The lower end of the tumbler is pivoted to the trigger-frame and is supported by the main-spring m , as shown.

A carrier, n , is pivoted in the trigger-frame just in front of the locking-shoulder. It is so formed that its parts will fold together and lie below the opening b^3 , so that the end of the cartridge will pass up onto its top. It is composed of the main lifting-lever n' , which is bifurcated and has the upper corners of the ends of its arms made slightly concave to fit the periphery of a cartridge, the secondary lever n^2 , which lifts the butt-end of the cartridge, and a stop-lever, n^3 , which is pivoted to both the levers n' and n^2 , and has its end extended nearly to the opening b^3 . The main lever has its rear end pivoted to the trigger-frame and is provided with a cross slot, n^4 , into which the end of the carrier-lever o fits. The main lever is bifurcated so that its arms embrace the under part of the cartridge.

The secondary or butt lever n^2 is pivoted between the arms of the main lever, and has its lower end slightly hooked and passed under a cross-pin, n^5 . Its opposite end is slightly enlarged and is so arranged that when the car-

rier is unfolded, as shown in Fig. 2, the said end will be in the same horizontal plane with the elevated end of the main lever. These two levers lift the cartridge to the breech-block, as shown in Fig. 2.

The stop-lever n^3 has its rear end pivoted to the upper or rear end of the secondary lever, while its other end passes between the arms of the main lever, (to which it is held by a cross-pin and slot or slide-arm, as shown,) and it extends to a point where it will stop the cartridge in the rear end of the magazine. This stop is so arranged relatively to the two levers that as it is lifted in the unfolding of the carrier it maintains a horizontal position, and, being immediately under the cartridge, aids in giving certainty to the lifting thereof.

The carrier-lever o is made hook-shaped, as shown, and is pivoted to the trigger-frame near the lower end of the locking-shoulder. Its upper edge is in the slot in the lower end of said shoulder, and its ends bear against the roller k^4 . The head of the lever is made T-shaped by lateral shoulders, o' , which bear on the periphery of the locking-shoulder. This head fits into the cross-slot n^4 of the main lever n' .

Figs. 2 and 3 show the operation of the carrier-lever and the carrier. Fig. 3 shows the carrier down in position to permit the entrance of a cartridge. If the breech-block be drawn back, as in Fig. 2, the pin k^4 is carried forward, strikes the forward end of the lever o , and depresses the same, which movement causes the main lever n' to be elevated and thereby the secondary lever and the stop are raised and the T-head of the carrier-lever drops slightly below the slot n^4 and locks the carrier in its elevated position, as shown in Fig. 2. If the gun be fired, the parts will be thrown back into the position shown in Fig. 2. In passing to this position the pin k^4 strikes the hook end of the lever n' , throws the T-head into slot n^4 and causes the carrier to fold and drop into its former position. The T-head passes slightly above the cross slot and locks the said carriers. The T-head also drops into the recess k' in the locking-shoulder, as shown.

When the carrier is down, as shown in Fig. 3, the cartridge will be pushed up onto it and against the stops g' on the breech-block. If the breech-block be slightly drawn back, as in Fig. 4, the T-head of the lever will be slightly depressed as it passes from the recess k' to the circular surface k^5 , which movement puts the said head into the cross-slot and raises the carrier just enough to push the flange of the cartridge into the channels g^6 g^6 . The lever o now is permitted to remain stationary till the pin or roller k^4 reaches the front portion thereof, and during this time the cartridge is drawn rearward by the breech-block until it rests in its position on top of the said carrier. The carrier is now raised, the cartridge is lifted, the old shell is quickly ejected through the opening b' , and the gun is ready to be fired. The

breech-block is operated by the draw-bar *d*, which is pushed forward by the recoil bar *c* until the catch *d'* drops onto the hook *f*. Then by releasing the recoil-bar the draw-bar is drawn back, the tumbler is turned, the rod *l* draws the locking-shoulder, and the latter draws the breech-block.

When the draw-bar is engaged, as in Fig. 4, the trip *d'*, of the trigger is opposite the slot and no interference takes place between these two parts. When the gun is to be fired, the trigger presses the draw-bar up and releases the rod *l*, and the stop *d'* enters the slot behind the catch, hereinbefore explained.

In Fig. 14 I have shown a construction of a bolt particularly adapted for use on guns. This bolt serves as an axis on which the hammer or locking-shoulder will turn, and it prevents dampness from getting into the firing mechanism, and clamps the sides of the main frame, so as to hold all the parts firmly to their places. This bolt *b*⁵, Fig. 14, consists of the two parts *q* and *q'*. The main stem *q* is hollow and threaded inside, and is provided with the head *q*², having a slot for the end of a screw-driver. This main stem extends through the main frame. The part *q'* or inner stem is threaded on its outer side, and screws into the main stem. It is provided with a head slotted to receive the screw-driver, as shown. In the application of this bolt the two heads clamp against the sides of the main frame. I slot both heads of this two-part separable bolt, so that in case it becomes very tight two screw-drivers may be employed to loosen it.

The recess or opening *b* is made so that it can be filled, when the gun is not in use, by a small plug, *p*, of rubber, as shown in Fig. 3, or other elastic material, and thus completely shut out water or dampness from the top.

Dampness is practically excluded from the rear of the chief part of trigger mechanism by a rear partition, *q*³, which is slotted, to permit the connecting-rod *l* to pass through it. Instead of slotting this partition, I prefer to make a larger opening and insert therein a slotted piece, *q*⁴, as shown. When the gun is fired, and the breech-block is closed against the breech of the barrel, a shoulder, *f*, on the connecting-rod *l* covers and closes the slot in the piece *q*⁴, thus practically closing the trigger-chamber against dampness from the rear. Thus it will be seen that by means of the screw *r*, which clamps the sides of the main frame against the trigger-frame, the shoulder *f*, which closes the rear opening in the trigger-frame, and the plug *p*, which closes the opening *b*, the main and more delicate parts of the trigger mechanism may be closed in against dampness when the gun is not in use.

I have shown in the drawings the shoulder-support hinged to the stock, so that its lower end swings to and from the butt. In my experiments in perfecting my invention, I made a stock in two parts, cutting the same about on a line marked *x x* in Fig. 1, so that the

rear part of the stock would slide forward when the recoil took place, and thus couple the draw-bar in a manner as hereinbefore described. On further experiments I abandoned the cutting of the stock, and adopted the hinged shoulder-bar shown. It will be understood that the hinging of this shoulder-bar is one of convenience. A yielding bar could be arranged parallel with the butt-end of the stock, and be connected to the latter by short arms or rods extended to and held so as to slide in grooves or channels in the sides of said stock. Retracting-springs could be arranged between the stock and bar, so that the latter would be thrown back after it had been pressed forward. I prefer the hinged bar shown, and particularly described in the foregoing specification.

The hinged shoulder-bar and the draw-bar connected thereto could be made applicable to several of the guns heretofore patented by me by making very slight mechanical changes. The application to such guns would be for the purpose only of raising the hammer. I would dispense with the spring *c*⁵ and construct the catch *d'* so that when the hammer was raised the bar would slide forward by the pressure of the gun against the shoulder or by a spring suitably arranged to automatically throw it forward. The hammer would remain standing, and when the gun was fired the draw-bar would engage on a shoulder or catch on said hammer and be in position to raise the latter by simply drawing on the end of the shoulder-bar. Such application of the shoulder-bar and draw-bar attached thereto would enable me to dispense with the upwardly-projecting thumb-pieces attached to the said hammers.

Again, the draw-bar, instead of having its rear end attached to the shoulder-bar, could, by slight mechanical changes, be detached therefrom and have its forward end pivoted to the connecting-bar. It would then move forward and back simultaneously with the movements of the breech-block. Its rear end and the shoulder-bar would each be so constructed that when the latter was pushed up against the butt it would couple automatically with the rear end of the former, and the breech-block would be drawn back by the combined action of both. In such construction the trigger mechanism would have to be changed slightly, so as to lift the rear end of the draw-bar from its hold on the shoulder-bar. This could be done by extending the rear trigger-arm *d*³ backward toward the butt, so that it would have a suitable purchase to lift or detach the bar; or the detaching could be effected by other means obvious to any skilled in the mechanism of gun-triggers.

I do not limit myself to the particular arrangement of parts specifically described hereinbefore. My chief invention contained in the mechanism described is the principle of supporting the gun against the shoulder upon a yielding or movable bar or other suit-

able device, which, when the gun recoils, will withdraw the breech-block or other firing mechanism, and thus automatically reload the gun.

5 It will be appreciated that good results will be had by the construction of breech-block were the cartridge placed down in the recess *b'* by hand, instead of being forced into firing position by the mechanism before described.
 10 The convenient operation of the breech-block and firing-pin and their operating mechanism, whereby the said block forces the cartridge into firing position and the pin is then actuated and discharges the same, would obviously be useful when the cartridge is applied to the breech-block by hand. In such use of the gun it would be necessary, of course, to provide some means of extracting or discharging the cartridge from the breech-block
 15 after firing. This end could be accomplished by any of the common forms of extractors known to those skilled in the art.

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

1. In a breech-loading fire-arm, a recoil-bar or mechanism attached to the stock and adapted to rest or bear against the shoulder, and intermediate means whereby the recoil
 20 mechanism will be automatically coupled to the firing mechanism when the gun is discharged, substantially as and for the purposes described.

2. The combination, with the breech-operating mechanism and a recoil mechanism attached to the stock, of a coupler or connection-rod, having one end attached to the breech-operating mechanism and its rear end detached and provided with a catch, and a
 30 draw-bar having its rear end attached to the recoil mechanism and its forward end detached and provided with a latch or grappling hook which when thrust forward will engage the catch on the rear end of the coupler, substantially as and for the purposes set
 45 forth.

3. The combination of a pivoted locking-shoulder, a breech-block connected to and operated by the locking-shoulder, a cartridge-carrier arranged below the breech-block and connected with and operated by the locking-shoulder, a coupling-rod, and a recoil mechanism attached to the stock and automatically engaged with the coupling-rod, substantially
 50 as and for the purposes set forth.

4. The combination, with the stock, the breech-block, and the firing mechanism, of a yielding recoil-bar attached to the butt of the stock and supported by a spring, and a draw-bar arranged between the recoil-bar and the firing mechanism, and having one end hinged or pivotally connected, and its other end detached, so as to be automatically engaged and coupled with both the butt-bar and firing
 60 mechanism when the gun is fired and to draw the breech-block back from the breech of the barrel, substantially as set forth.

5. The combination, with the stock, and a recoil-bar attached to the stock, of a draw-bar having its rear end pivotally connected
 70 to the recoil-bar, and provided with anti-retracting shoulders *d'*, which engage stops suitably arranged on the stock, a retracting-spring, and a depressing-spring arranged to bear upon and depress the draw-bar, substantially as set forth.

6. In a breech-loading fire-arm, the combination of a recoil-bar attached to the butt, an automatic reloading mechanism arranged within the casing, a detachable connecting-
 80 bar automatically coupled with the recoil-bar and the reloading mechanism when the gun is fired, and a trigger arranged to disengage the reloading mechanism from the recoil-bar when the gun is to be discharged, substantially
 85 as set forth.

7. The combination in a breech-loading fire-arm, of the stock, the firing mechanism, the recoil-bar, a retracting-spring, a draw-bar having one end attached to the recoil-bar
 90 and its other or forward end adapted to be automatically engaged with the firing mechanism, and a spring suitably arranged and adapted to depress the forward end of the draw-bar, substantially as set forth.

8. In a breech-loading fire-arm, the combination, with the recoil-bar, and the draw-bar having its forward end adapted to automatically engage the firing mechanism, of an anti-firing shoulder arranged above the forward
 100 end of the draw-bar and adapted to operate in connection therewith, substantially as set forth.

9. In a breech-loading fire-arm, the combination, with the recoil-bar, the draw-bar having its forward end adapted to automatically engage the firing mechanism, and the firing mechanism, of the trigger, and a trip-arm connected with the trigger and adapted to disengage the draw-bar and firing mechanism,
 110 substantially as set forth.

10. The combination, with the recoil-bar, the draw-bar, the firing mechanism, the trigger, and the trip-arm connected with the trigger, and adapted to disengage said draw-bar and firing mechanism, of the anti-firing shoulder,
 115 arranged substantially as described, and adapted to operate substantially as specified.

11. The combination of the breech-block, the firing-pin located therein, the return-lever pivoted midway its ends, and having its forward wing engaged with and adapted to withdraw the firing-pin, the hammer pivoted in the breech-block, and alternately engaging the rear wing of the return-lever and the firing-
 120 pin, and the necessary operating mechanism, substantially as set forth.

12. The combination of the breech-block, the firing-pin, the return-lever pivoted in the breech-block and having its forward wing engaged with the firing-pin, the hammer pivoted in the breech-block and having its portions above and below the pivot arranged to alternately engage the rear wing of the re-
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turn-lever and the firing-pin, the locking-shoulder connected with said hammer, the tumbler, the connecting-rod having its forward end pivoted to the firing-shoulder, and its opposite end connected with the tumbler and provided with the hooked extension adapted to engage the draw-bar, the draw-bar, and the recoil-bar or support, substantially as set forth.

13. The combination of a breech-block sliding longitudinally on suitable guides, and having the firing-pin arranged therein, a hammer having its forward end pivoted to the breech-block behind the firing-pin, the locking-shoulder having the rear end of the hammer pivoted thereto, and the trigger mechanism, substantially as set forth.

14. In a breech-loading fire-arm, a sliding breech-block having two forward extensions provided with vertical guide-channels formed in their inner faces, spring-cartridge-holding jaws arranged on opposite sides of and secured to the breech-block just above the forward extensions thereon, and a cartridge-carrier arranged below the breech-block, whereby when the latter is drawn back the cartridge will be forced upward through the guide-channels into the spring-jaws on said breech-block, substantially as set forth.

15. The combination of the magazine, the carrier adapted to receive the cartridge from the magazine, the breech-block, and the pivoted locking-shoulder having its upper end connected with the breech-block and its lower end connected with the carrier, whereby said parts are reciprocally operated, substantially as and for the purposes set forth.

16. The combination, with the carrier, and the locking-shoulder having its lower end provided with a pin or stud, of the carrier-lever having its arms bent at approximately a right angle and adapted to be alternately engaged by the pin or stud on the locking-shoulder, substantially as set forth.

17. The herein-described cartridge carrier and stop, comprising the lever n' , pivoted to the frame, and having its rear end adapted to be engaged by the firing mechanism, and its opposite end adapted to support the forward end of a cartridge, the lever n'' , pivoted midway its ends to the lever n' , and the lever n''' , having its rear end pivoted to the lever n'' , and its forward end turned down in front of the cartridge-opening in the casing, and provided with an elongated bearing supported by and sliding upon a lateral shoulder or pin projected from the upper end of the lever n' , substantially as set forth.

18. The combination, with the firing mechanism and the trigger-frame, of the lever n' , pivoted to the frame and having its rear end adapted to be engaged by the firing mechanism, and its forward end adapted to engage under and lift the front end of the cartridge, the lever n'' , pivoted midway its ends and having its rear end adapted to lift the rear end of the cartridge, and a pin or bearing, n''' , ar-

ranged on the frame above the lower or forward end of the lever n'' , substantially as shown and for the purposes specified.

19. The combination, with the carrier n , having its lever n' provided in its rear end with a slot, n'' , and the locking-shoulder k , provided with a pin, k' , of a lever, o , pivoted to the frame and arranged so that its rear end will engage the pin k' on the locking-shoulder, and its forward end engage in the notch n'' in the lever n' , substantially as and for the purposes set forth.

20. The combination, with the barrel, of a depending retaining-plate arranged at the muzzle and provided with a detent in its rear face, and a magazine provided with hangers or sleeves placed upon and turning on the barrel, and a spring-catch placed in the forward end of the magazine and engaging in the detent in the depending retaining-plate, substantially as shown and described.

21. The combination of the gun-barrel, the retaining-plate depending therefrom and provided with a depression or indentation on its inner face, the magazine suspended from the barrel, and a yielding catch or button arranged in the forward end of the magazine in position to engage the indentation in the retaining-plate, substantially as set forth.

22. The combination of the barrel, the magazine provided with a longitudinal slot and suspended from the barrel and turning out from under the same, the plunger provided with a pawl projected into and made of less width than said slot, a series of pins or stops suitably supported and projected into and made of a width less than the slot in the magazine, and means whereby said magazine is rotated slightly when turned from under the barrel, substantially as set forth.

23. The combination of the barrel provided on its under side with a notch or depression, and the magazine constructed, substantially as described, and suspended from said barrel, said magazine being provided with a lug projected approximately radially therefrom in position to engage the notch in the barrel, whereby the magazine is given a slight axial rotary motion, substantially as set forth.

24. The combination of the gun-barrel, the depending retaining-plate having its sleeve slipped on the muzzle end of the barrel and provided in its under side with a recess or notch, and the magazine suspended from the barrel and provided at its forward end with a lug adapted to engage said recess or notch, substantially as set forth.

25. In a magazine-gun, the combination, with the barrel, of a magazine provided with hangers or sleeves placed upon and turning on the barrel, a depending retaining-plate provided with a sleeve fitting over and detachably secured to the muzzle, and means for interlocking the plate and magazine, substantially as set forth.

26. In a magazine-gun, the combination, with the barrel, of a swinging carrier, a magazine

supported loosely in the carrier, means for partially rotating the magazine in the carrier, and means for locking the carrier and magazine in place immediately below the barrel, substantially as set forth.

27. The combination of the sliding breech-block, a firing-pin located therein, a hammer pivoted at one end to the block in rear of and arranged to engage the end of the firing-pin, and having its other end pivotally connected to the trigger mechanism, and the trigger mechanism, substantially as set forth.

28. The combination of the breech-block, the firing-pin, the hammer having one end pivoted in the breech-block and arranged to engage the rear end of the firing-pin, and having its other end pivotally connected with the breech-block, the locking-shoulder arranged to turn against the rear end of and lock the breech-block against the barrel, and the necessary trigger mechanism, substantially as described.

29. In a breech-loading fire-arm, the combination, with the locking-shoulder and the draw-bar, of the tumbler, the main spring, and the

connecting rod having one end pivoted to the locking-shoulder and its other end pivoted to the tumbler and provided with a rear hooked extension, substantially as and for the purposes set forth.

30. The combination, with the magazine having a longitudinal slot, a carrier adapted to support the magazine, and a series of pins projected from the carrier into the slot in the magazine, of a propelling-spring arranged within the magazine, a plunger supported by the free end of the propelling-spring, a spring catch or pawl attached to plunger and arranged to pass under and engage on the forward side of the pins on the carrier as the plunger is forced back by the cartridges, and means for releasing the catch from its hold upon the pins, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HORACE UPDEGRAFF.

Witnesses:

P. B. TURPIN,
O. M. KRAMER.