

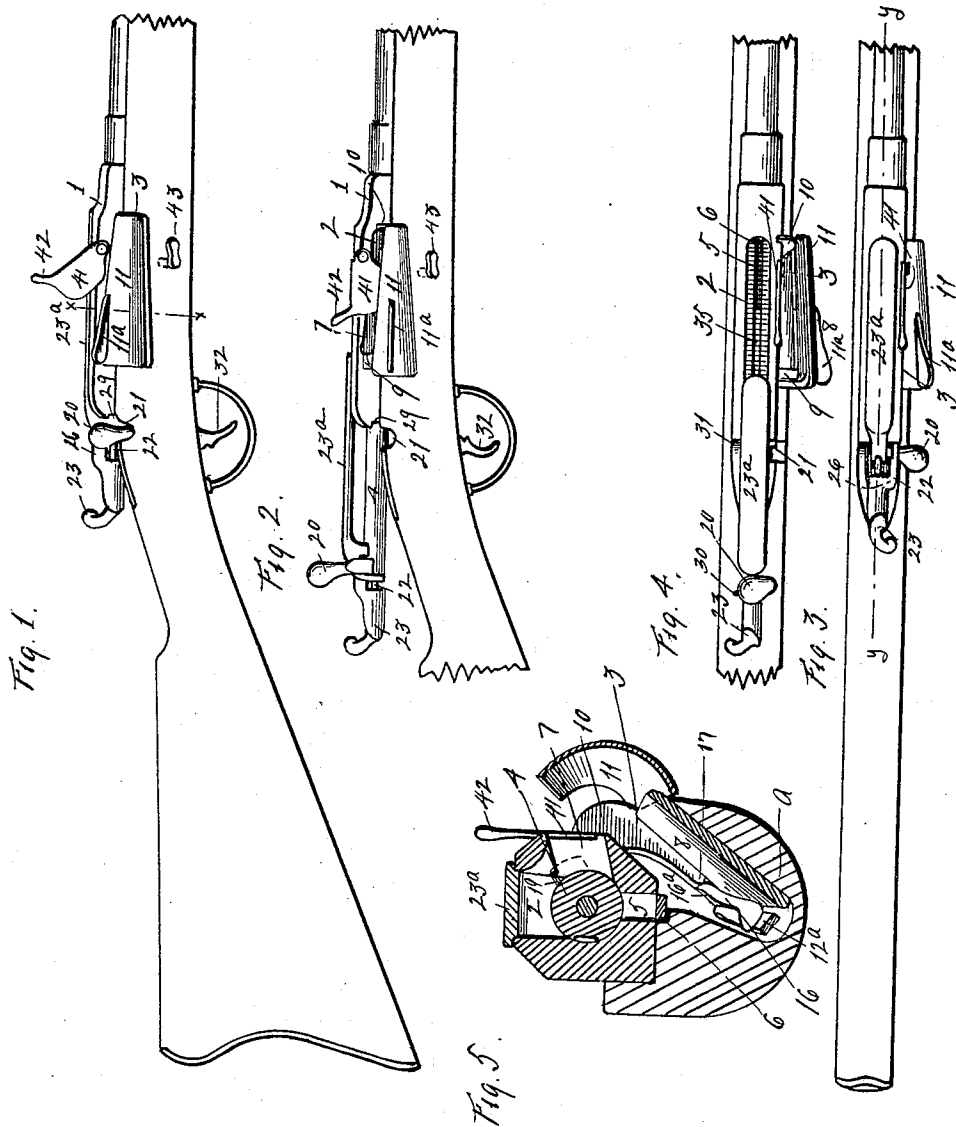
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3 Sheets—Sheet 1.

J. W. MULLINS.
MAGAZINE FIREARM.

No. 571,840.

Patented Nov. 24, 1896.



WITNESSES

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Phil. Massi.

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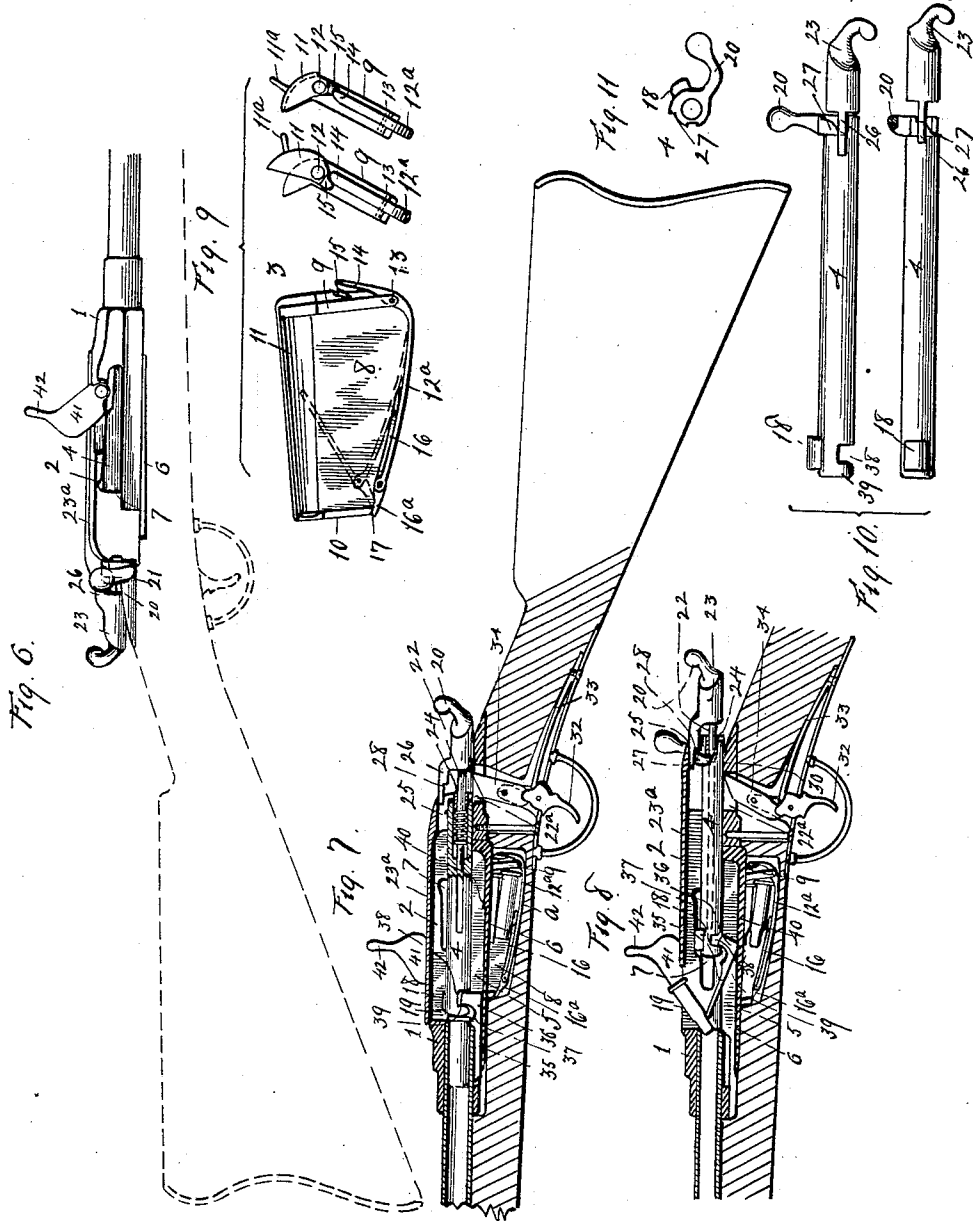
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Fig. 12.

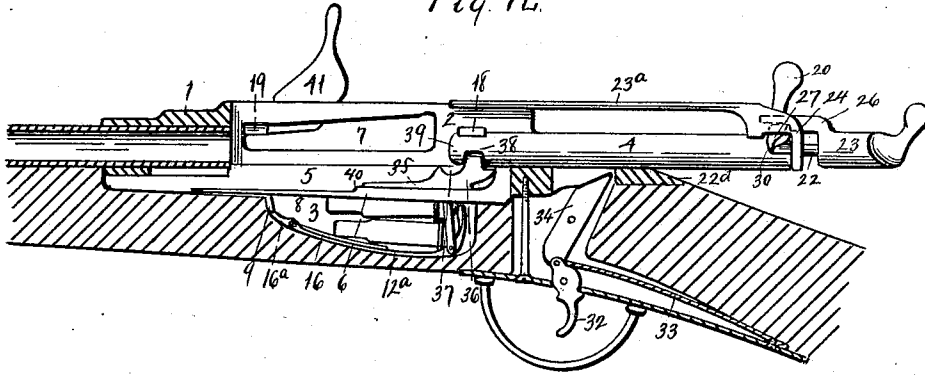


Fig. 13.

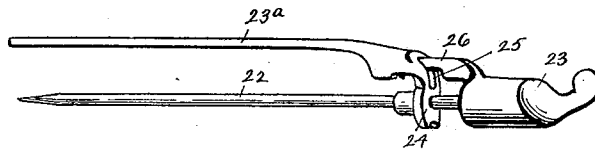


Fig. 14

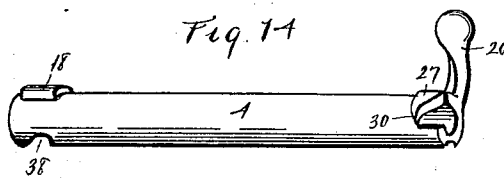
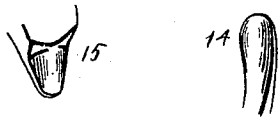


Fig. 15.



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UNITED STATES PATENT OFFICE.

JOHN W. MULLINS, OF LONDON, KENTUCKY.

MAGAZINE-FIREARM.

SPECIFICATION forming part of Letters Patent No. 571,840, dated November 24, 1896.

Application filed January 23, 1896. Serial No. 576,567. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. MULLINS, a citizen of the United States, and a resident of London, in the county of Laurel and State of Kentucky, have invented certain new and useful Improvements in Magazine-Firearms; 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 letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a side view of the firearm having the invention applied thereto, bolt locked, and parts in firing positions. Fig. 2 is a similar view, bolt unlocked and withdrawn, firing-pin retracted, guard 41 drawn, and cover of magazine thrown back. Fig. 3 is a plan view of Fig. 1 with safety-lock effected. Fig. 4 is a plan view of Fig. 2. Fig. 5 is a cross-section on the line *x x*, Fig. 1, with magazine-cover thrown back. Fig. 6 is a side view of the gun similar to Fig. 1, with magazine removed and trigger and stock in dotted lines. Fig. 7 is a section on the line *y y*, Fig. 3. Fig. 8 is a similar section with bolt partly withdrawn. Fig. 9 shows details of the magazine. Fig. 10 shows the bolt and means for retracting the firing-pin. Fig. 11 is an end view of the bolt in its locked position. Fig. 12 is a sectional view similar to Fig. 8, but with the bolt withdrawn to its full limit. Fig. 13 is a detached perspective view of the firing-pin, the cocking-head, and the magazine-cover. Fig. 14 is a similar view of the bolt. Fig. 15 is a detail view showing the engaging cam-surfaces 14 and 15 of the magazine-cover and its lever.

This invention is designed to provide a magazine-firearm of improved character, and it relates more especially to the magazine, the mechanism for throwing the cartridges from the magazine into the receiver, and for extracting and ejecting the empty shells from the receiver; also, to the reciprocating breech-bolt and its adjuncts, including the firing-pin and hammer-pieces.

The invention also consists in the novel construction and combination of parts, all as here-

inafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, the numeral 1 designates the breech-piece of a firearm constructed according to my invention, and having therein the receiving-chamber 2, which will hereinafter be referred to as the "receiver."

3 is the magazine, and 4 is the longitudinally-reciprocating breech-bolt.

The bottom of the receiver is slotted longitudinally, as indicated at 5, to receive an ejector-plate 6, and its right-hand wall is formed with a slot or opening 7, through which the cartridges enter from the magazine. Said magazine is seated in a chamber or cut-away portion *a* of the stock adjacent the opening 7. The inner wall of the magazine is formed by the receiver and its outer wall by a plate 8, which is oblique with reference to the receiver, which it gradually approaches toward its forward end. Said plate has end portions 9 and 10, which extend to and seat against the receiver at the respective ends of the opening 7.

11 is the cap or cover plate of the magazine, which is pivoted to a stud 12 of the end portion 9. This plate is of convexo-concave form, and its lower edge portion laps over upon the outside of the plate 8. When closed, the upper edge of the plate 11 abuts against the receiver, as shown. 11^a is a thumb-lug on the top of said plate.

The bottom of the magazine consists of a flat spring 12^a, whose rear end portion is bent upwardly upon the outer face of the end portion 9. Just above its angle this spring is pivoted in a cut-away portion of the part 9, as indicated at 13. The upper end of the spring has a cam-face 14, which is engaged by a cam-surface 15 of a heel or extension of the cap or cover plate 11.

16 designates a follower-arm whose lower portion is pivoted to the spring 12^a at the free end of the latter. The extension 16^a of said arm beyond the pivot is arranged to engage a shoulder 17 at the lower edge of the part 10. The cartridges are placed in the magazine one above another and resting upon the arm 16. The cap or cover plate 11 is then closed, which causes the cam-surface 15 to

act upon the cam-face 14 in such a manner as to raise the free end of the spring 12^a. This action causes the extension 16^a of the follower-arm to take a bearing against the shoulder 17 and raises the said arm forcibly against the bottom cartridge. This action, however, is resisted by the cartridges which react against it, and in consequence the spring 12^a is thrown under tension in such a manner as to cause the cam-faces 14 and 15 to engage each other with sufficient friction to lock the cap or cover 11 closed as long as a single cartridge remains in the magazine. Said cover may, however, be opened by a forcible movement sufficient to overcome the frictional engagement of the said cam-faces, which are of the convex form shown in Figs. 9 and 15. The tension of the spring 12^a is gradually relieved as the cartridges are one by one thrown into the receiver, but until the last cartridge has left the magazine said spring is sufficiently under tension to prevent the cover being opened. As soon, however, as the magazine is emptied the follower-arm no longer reacts upon the spring, and the cover is no longer locked, but is free to open.

The reciprocating breech-bolt has the usual locking-lug 18 near its forward end, which is arranged to engage a shoulder or offset 19 of the receiver when the bolt is thrown forward and into firing position. 20 is the thumb-piece or knob at the rear end of the bolt by which it is operated, and 21 is a recess in the rear extension of the receiver, which is engaged by said piece or knob when the bolt is in firing position.

22 is the firing pin or needle which works longitudinally within the bolt in the usual manner and which is provided with the usual spring.

23 is the cocking-head on the rear end of said pin.

23^a is the cap or guard which closes the slot in the top of the receiver when the bolt is thrown forward. Said cap or guard has a perforated lug 24 at its rear end, which loosely engages the firing-pin and through which said pin works.

25 is a slot in the rear portion of the cap or guard which receives the safety locking-arm 26 of the cocking-head. The rear end portion of the bolt has a cam 27, which is arranged, when the bolt is turned to the left preparatory to drawing it back, to engage a shoulder 28 of the arm 26 and thereby retract the firing-pin and cocking-head.

29 is a recess in the rear end of the receiver for the purpose of receiving the end of the arm 26 when the latter is thrown into position to form a safety-lock, as hereinafter more fully described.

30 is a beveled shoulder on the bolt, which is arranged, when the bolt is thrown forward, to engage the receiver at 31 and thereby rotate said bolt to its locking or firing position.

32 is the trigger, 33 its spring, and 34 the

pivoted sear whose upper beveled end is designed to engage the firing-pin and hold it in cocked position, the engagement being made through a slot 22^a in the extension of the receiver.

35 is the extractor and ejector, which consists of a narrow piece adapted to slide upon the plate 6, which, as before described, is located in the slot 5 in the bottom of the receiver. The rear end portion of the extractor and ejector is formed with an enlarged portion 36, having in its upper face an approximately semicircular recess 37. The forward end portion of the bolt is cut away on its under side, as indicated at 38, and the wall or abutment 39 in front of this cut-away portion loosely engages the recess 37. A projection or abutment 39 to the rear of the recess 37 loosely engages the cut-away portion 38. On the upper face of the plate 6 is a lug or projection 40, which, as the bolt is thrown backward, is arranged to be engaged by the rear end of the extractor and ejector to momentarily raise or throw up its forward end. The shoulder or abutment forming the forward wall of the recess 37 forms the hook which engages the rim of the shell.

The cut-away portion 38 of the bolt extends through a sufficient portion of the periphery thereof to enable the bolt to have its proper rotary movement without affecting the extractor and ejector.

41 is a cut-off which is pivoted to the receiver and which is arranged to partially close the slot or opening 7 to stop the feed. This plate has a thumb projection 42 and may be turned up or down at will.

The operation is as follows, the magazine being properly supplied with cartridges: The thumb-piece or knob of the bolt is thrown up out of engagement with the recess 21, which rotates and unlocks the bolt. This action also, through the cam 27 and shoulder 28 of the arm 26, retracts the cocking-head and firing-pin. The bolt is now drawn back, sliding freely over the beveled end of the sear and bringing with it the ejector and extractor and the cap or guard 23. As soon as the bolt exposes the slot or opening 7 of the receiver (the cut-off 41 being raised) the upper cartridge in the magazine (which is held up by the follower-arm 16 and its spring 12^a) drops through said slot or opening into the receiver. The bolt is now shot forward and carries the cartridge to its seat in the barrel. Upon this movement of the bolt the sear catches the sear-notch and holds the firing-pin retracted. As the bolt comes to its seat the beveled or cam shoulder 30 impinges against the breech-block at 31, and the bolt is automatically thrown over into locked and firing position.

It will be observed that the gun is always cocked by the action of the bolt and that it is therefore always normally cocked. To prevent accidental discharge, the cocking-head is pulled back until the arm 26 is disengaged from the slot 25. The said piece is then

turned to bring its arm 26 into engagement with the recess 29, thereby forming a safety-lock.

When the bolt is withdrawn after firing, the extractor and ejector 35 engages the rim of the shell and draws the latter back into the receiver. At this time the said extractor comes in contact with the lug or projection 40 of the plate 6, which throws up the extractor and ejector and throws the shell out of the receiver. The extractor and ejector, as the bolt is further withdrawn to pass the projection 40, at once drops back into its original position, as shown in Fig. 12, and is ready to receive a new cartridge from the magazine.

It will be noted that the shell will be thrown out in a forward direction instead of backwardly into the face of the operator. If it is desired to save the shells, the bolt is withdrawn gently, which will throw the shell up on end, where it can readily be gotten with the fingers and without the necessity of stooping over and picking it from the ground.

The magazine is secured in place by a thumb-screw 43, which can be loosened to permit the magazine to be removed.

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

1. In a magazine-firearm of the class described, the combination with the breech-piece and its receiving-chamber having the side opening, of the magazine placed opposite said opening and designed to contain a plurality of cartridges placed longitudinally therein, one upon another, the pivotal cover therefor and the spring-actuated follower in the said magazine, and a locking device controlled by said follower whereby said cover is held closed until the magazine is emptied substantially as specified.

2. In a magazine-firearm, the combination with the receiver having the side opening, of the magazine opposite said opening, a pivoted spring in the bottom of the magazine, a cover-plate arranged to operate upon said spring, a follower-arm pivoted to the spring, and a bearing for the said arm beyond the said spring, substantially as specified.

3. In a magazine-firearm, the fixed, but removable magazine, its hinged or pivoted cover, and the spring-actuated-follower mechanism, coacting with said cover, when the latter is closed and the magazine filled, to form a lock therefor, substantially as specified.

4. In a magazine-firearm, the combination with the receiver, of the magazine-chamber at one side thereof, and communicating therewith by a side opening, the oblique plate forming one wall of said chamber and having end portions, the spring forming the bottom of said chamber and pivoted to one of said end portions, said spring having an arm provided with a cam portion, a cap or cover pivoted to one of said end portions and having a cam-wheel arranged to impinge upon the cam por-

tion of the spring, and the follower-arm pivoted to the free portion of the spring and arranged to take a bearing upon the other of the said end portions, substantially as specified.

5. In a magazine-firearm, the combination with the receiver having a side opening, of the magazine-chamber at one side of the receiver, the removable but stationary plate forming the outer wall of said chamber, and having end portions, the hinged cap or cover, and the spring-actuated follower, and means whereby said cap or cover cannot be opened until the said chamber is emptied, substantially as specified.

6. In a magazine-firearm, the combination of the longitudinally-reciprocating and rotary breech-bolt, having the cams 27 and 30 at its rear end portion, the firing pin or needle, its cocking-head arranged to be acted upon by the cam 27 to retract said pin or needle, the receiver having the shoulder 31 arranged to coact with the cam 30, and the receiver cap or cover having a pivotal engagement with the said pin or needle, substantially as specified.

7. In a magazine-firearm, the combination of the receiver, the longitudinally-reciprocating and rotary breech-bolt, the firing-pin, the cocking-head adapted to be withdrawn beyond its cocking position, and having the safety locking-arm 26, the receiver cap or cover loosely carried by said pin, and having a recess for the engagement of said locking-arm in its normal position, together with cam devices whereby said pin is automatically retracted by the withdrawal of the said bolt, substantially as specified.

8. In a magazine-firearm, the combination of the longitudinally-reciprocating and rotary breech-bolt, its locking devices and cam portions 27 and 30, the rotary and reciprocating firing-pin, the cap or guard for the receiver carried loosely on said pin, and slotted at its rear end portion, the cocking-head carried by said pin, its safety locking-arm arranged to be acted upon by the cam portion 27 and to engage the slot of the cap or guard, the receiver having the abutment 31 for the cam portion 30, the trigger and the sear, all substantially as and for the purpose described.

9. The combination of the receiver, the reciprocating and rotary breech-bolt, its locking devices, the firing-pin, its cocking-head, means whereby said pin is automatically retracted into firing position by the retraction of said bolt, and the receiver cap or cover plate carried loosely and pivotally on the said pin, substantially as specified.

10. In a magazine-firearm, the combination with the receiver, and the bolt arranged to reciprocate longitudinally therein, of the extractor and ejector arm 35 having a head portion at the rear end which loosely and pivotally engages a recess in the inner, forward portion of said bolt, and whose extracting-claw is near its rear end, and means whereby said arm is momentarily thrown upward as

the bolt is retracted and immediately thereafter falls back by the further retraction of the bolt, to its normal position, substantially as specified.

5 11. In a magazine-firearm, the combination with the receiver having the longitudinal slot in its bottom, the plate 6 in the bottom of said slot, and having the projection 40, of the
10 breech-bolt, having the recess at its lower forward portion, the ejector and extractor arm whose rear end loosely engages the said recess, and which has its extractor-claw immediately forward of the end of the bolt, where-
15 by its forward end extends nearly to the forward end of the shell, said arm, when the bolt is retracted being momentarily thrown upward to eject the shell, by its engagement with the projection 40, after which it immediately returns to normal position by the fur-

ther retraction of the bolt, substantially as 20 specified.

12. In a magazine-firearm, the combination with the receiver having the side opening of the magazine opposite said opening, a pivoted 25 spring in the bottom of the magazine, a follower-arm pivoted to the spring, a bearing for the said arm beyond the spring, the pivotal cover, means for holding said cover closed through the action of said follower-arm and spring, and the pivoted cut-off arranged to 30 partially close the said side opening, substantially as specified.

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

JOHN W. MULLINS.

Witnesses:

W. W. JONES,
R. M. JACKSON.