No. 640,627. Patented Jan. 2, 1900.

# B. BURTON.

## MAGAZINE FIREARM.

(Application filed Aug. 16, 1899.)

(No Model.)

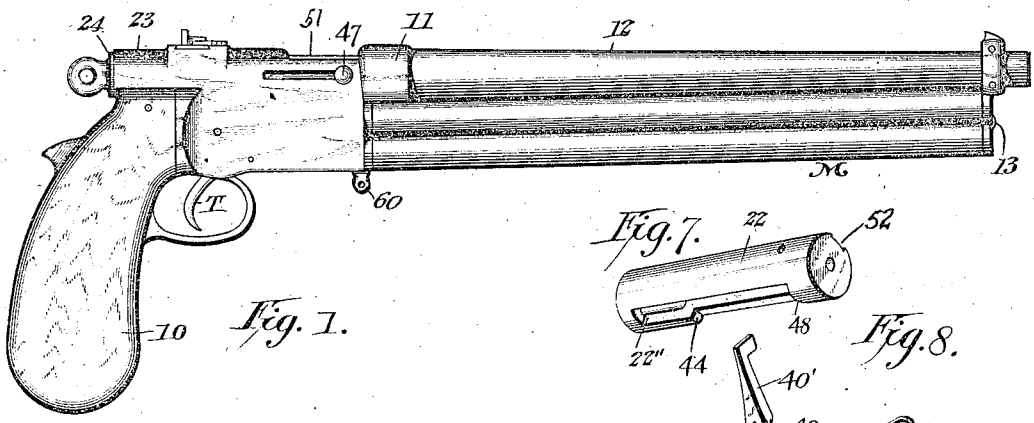



Fig. 1.




Fig. 7. Fig. 8.

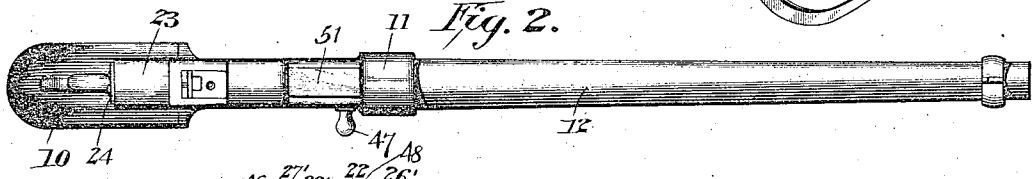



Fig. 2.

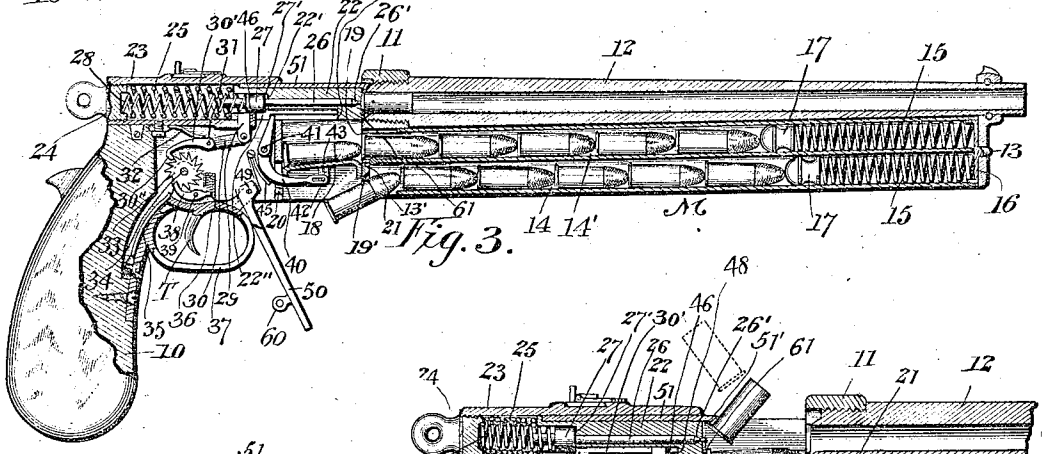



Fig. 3.

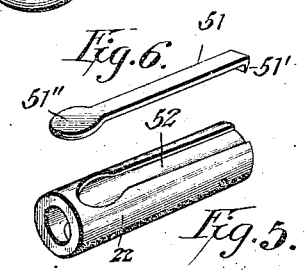



Fig. 6. Fig. 5.

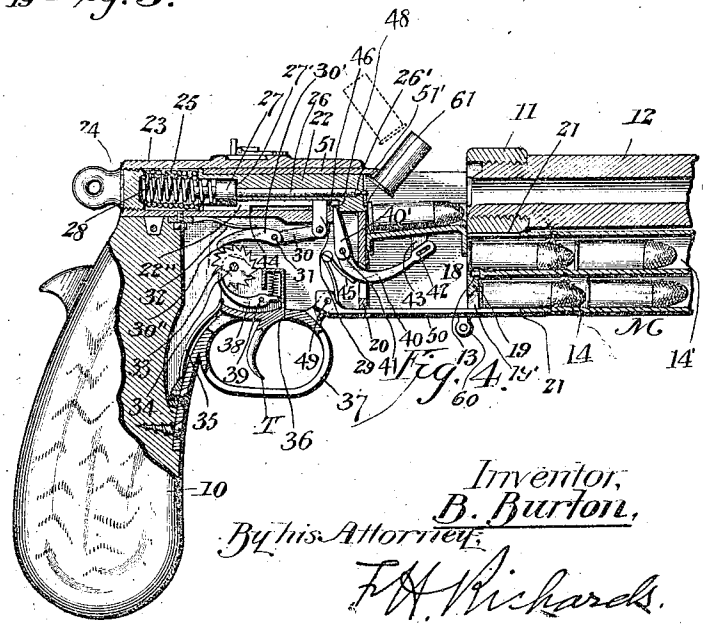



Fig. 4.

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# UNITED STATES PATENT OFFICE.

BETHEL BURTON, OF NEW YORK, N. Y.

## MAGAZINE-FIREARM.

SPECIFICATION forming part of Letters Patent No. 640,627, dated January 2, 1900.

Application filed August 16, 1899. Serial No. 727,380. (No model.)

*To all whom it may concern:*

Be it known that I, BETHEL BURTON, a citizen of the United States, residing in New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Magazine-Firearms, of which the following is a specification.

This invention relates to magazine-firearms, and has for its object a construction in which the bolt mechanism is withdrawn and the empty shell is expelled by the reactive force of the explosion, the bolt being again immediately automatically advanced to force a new cartridge into the barrel, as will be hereinafter set forth.

My invention also has for a further object the provision of a magazine embodying a plurality of chambers each of which is adapted to contain a number of cartridges and which is separately chargeable when another of said series of chambers is in position to discharge the cartridges therefrom consecutively and deliver the same to a carrier, whereby they are positioned adjacent to the end of the barrel and subsequently forced into proper position therein by bolt mechanism of suitable construction.

A further object of my invention is the provision of improved means for releasing the firing-pin, as will hereinafter appear and as illustrated in the drawings accompanying and forming part of this specification, in which—

Figure 1 is a side view of my improved firearm. Fig. 2 is a top view of the same. Fig. 3 is a central longitudinal section. Fig. 4 is a similar view of some of the parts in another position. Fig. 5 is a perspective view of the bolt by which the cartridges are forced into the barrel. Fig. 6 is a detail view of the extractor carried by said bolt. Fig. 7 is an under side perspective view of the bolt, and Fig. 8 is a detail view of the actuator for operating the carrier whereby the cartridges are transferred from the magazine into position to be forced into the barrel.

Similar characters of reference designate like parts in all the figures of the drawings.

In the accompanying drawings, 10 designates the handle or stock of the firearm provided with a frame having a head 11 for receiving the barrel 12, which is in screw-threaded engagement therewith and which supports on trunnions 13 and 13' a magazine, (designated in a general way by M,) comprising a series of chambers 14 and 14', said magazine being revoluble on the trunnions to bring the desired chamber thereof into a position from which the cartridges may be delivered to the gun.

Located in each of the chambers 14 and 14' is a spring 15, resting at one end against the end plate 16 of the magazine and with its other end against a follower 17, which when the cartridges are inserted into a chamber will afford a yielding abutment, whereby when the magazine is rotated the cartridges will be discharged therefrom and will be delivered to a carrier 18, consisting substantially of a U-shaped receptacle guided between walls 19 and 20 of the frame and which is vertically reciprocative to transfer a cartridge from one of the chambers—in the present instance, chamber 14—into position to be forced into the barrel 12, as shown in Fig. 4.

In Fig. 3 is illustrated the manner in which one of the chambers of said magazine is being supplied with cartridges, an opening 21 being provided for that purpose in each of said chambers 14 and 14', while the wall 19 is cut away at 19' near its lower extremity to permit the passage of a cartridge into the chamber.

When a cartridge has been transferred by the carrier 18 to a position adjacent to the rear end of the barrel and nearly in alinement with the bore thereof, a bolt 22 will force said cartridge into the bore of said barrel, said bolt being shown in the nature of a reciprocatory slide guided within a frame 23, which is provided at its rear end with a plug 24 in screw-threaded engagement therewith, said plug serving as an abutment for the spring 25, the other end of which rests against the end of the bolt 22, and whereby said bolt is normally advanced toward the barrel.

Properly disposed within the bolt 22 is a firing-pin 26, having its end 26' slightly reduced and provided near its opposite end with a collar 27, secured to or forming a part of one face of said pin, said collar being pressed against by a spring 28, and the other face thereof being engaged by a sear 29, whereby said firing-pin will be retained in "full-cock" position upon the return of the bolt 22 to force a cartridge into the barrel.

The movement of the firing-pin is at first

so limited that when its point strikes the cartridge-cap the front face 27′ of the collar 27 will not come into contact with the shoulder 22′, formed in the bolt 22, as shown in Fig. 3; but when said bolt is withdrawn the firing-pin will be projected by the spring 28 to its full limit and will then aid in ejecting the empty shell, as will be hereinafter described.

Inasmuch as the bolt 22 must have sufficient movement to permit a complete cartridge to be carried in front thereof, while only a comparatively slight movement of the firing-pin is necessary for its proper operation to explode a cartridge, the bolt 22 is preferably provided with a slot 22″, into which the sear 29 may project to engage the collar 27 during the final closing movement of said bolt. The sear 29 is vertically guided in the frame 23, and is secured at its lower end to a lever 30, which is pivoted at 31 to the frame, and the arm 30′ of which is engaged by a spring 32, normally tending to retain the sear 29 in its raised or engaging position.

The arm 30′ of the lever is provided near its free end with a hook-shaped projection 30″, engaging a series of teeth on a disk 33, which is loosely journaled upon a spindle 34, each of said teeth being effective on the projection 30″ for raising the arm 30′, and thereby withdrawing said sear 29 from the collar 27. Also supported on the spindle 34 is the trigger T, one face of which is engaged by a spring 35, normally tending to throw said trigger forward, such movement being limited by the face 36 striking a stop-face formed in the guard 37.

The web of the trigger T carries a spring-actuated pawl 38, which is pivoted at 39 and one end of which is adapted to engage the teeth of the disk 33 to rotate the same for the purpose of withdrawing the sear 29, as will be readily understod.

Various means may be employed for properly operating the carrier, those shown in the drawings being operated by the bolt 22 to lower the carrier 18 during the closing movement of said bolt, such means consisting of a lever 40, which is pivoted at 41 and one end of which may be slotted to receive a pin 42, projecting from an ear 43 of the carrier 18, while the arm 40′ extends upwardly and into position to be engaged by a shoulder 44, formed in the bolt 22 to rock said lever, and thereby lower the carrier against the action of the spring 45, which normally tends to rock said lever in the reverse direction until the arm 40′ strikes an abutment 46, provided on the frame 23.

In Fig. 3 the carrier 18 is shown in its lowermost or cartridge-receiving position, the shoulder 44 of the bolt 22 being in engagement with the lever 40′ and the spring 45 being under increased tension. If, now, the bolt 22 is pulled back by hand, (an extraneously-disposed knob 47 being provided for that purpose,) and the spring should not properly operate to raise the carrier with a fresh cartridge, the end of the lever 40′ will be engaged by a shoulder 48, formed in the bolt 22, during the latter part of its retrograde or opening movement, thereby positively rocking said lever, and consequently operating said carrier.

Pivoted near the under side of the frame, as at 49, is a cover 50, whereby the receiving-opening of the lowermost chamber 14 or 14′, as the case may be, and simultaneously therewith the passage in the frame for the movement of the carrier may be closed. After such chamber has been filled said cover may be held in either its open position (see Fig. 3) or in its closed position (shown in Fig. 4) by one arm of the above-mentioned spring 45. The cover 50 is provided with a thumb-piece 60, whereby it may be opened either to gain access to the lowermost chamber of the magazine or to facilitate the cleaning of the fire-arm.

Means are provided whereby the cartridge-shell may be automatically extracted from the barrel, such means consisting substantially of a yielding extractor 51, having at its end a lip 51′, which is beveled at its front edge to automatically seat itself over the rim of the cartridge when the bolt is forcing the same into place in the barrel.

The extractor 51 is preferably formed with an enlarged portion 51″, whereby it is prevented from longitudinal displacement relatively to the bolt 22, which is provided with a corresponding recess 52 for the reception of said extractor.

Upon the rearward movement of the bolt 22, caused by the explosion of the cartridge, the shell will ordinarily be aided, if necessary, by the extractor 51 until the front end of said shell is in position to clear the rear end of the barrel, when the firing-pin 26 will be slightly projected outward and against the head of the shell until the shoulder 27′ of said pin engages the stop-face 22″ of the bolt. By this slight final forward movement of the firing-pin the shell, the head-flange of which engages the lip 51′ of the extractor 51, will be caused to turn on said lip as a fulcrum and will be ejected through an aperture provided for the purpose in the upper part of the frame in the manner shown in Fig. 4.

It will be observed that the bolt 22 is provided near its forward end with a lip 61, the front face of which is substantially in vertical alinement with the point of the firing-pin when the latter is in its full forward position, and that, furthermore, said lip is in alinement with the rear edge of the carrier 18, so that when said carrier is raised with a cartridge in place thereon no obstruction is presented to the free movement thereof.

The lip 61 will, after the cartridge has been forced into place in the barrel, seat itself under the head of the cartridge, (see Fig. 3,) and will during the return or opening movement of the bolt 22 serve as a means whereby the shell will be prevented from dropping into the carrier-passage, as will be readily understood.

The operation of my invention is as follows: The chambers of the revoluble magazine are first filled with cartridges in the manner indicated by Fig. 3, and the bolt or breech-block 22 is forced rearward against the action of the spring 25 by manipulating the handle or knob 47. By this action the carrier is elevated and brings a cartridge into line with the breech-opening of the barrel, and the bolt being released it is impelled forward by its spring and forces the cartridge into the barrel. On the forward movement of the bolt the shoulder 27 of the firing-pin comes into contact with the sear 29, thereby setting said pin. The arm is now in condition for automatic work, and when the trigger is pulled the firing-pin is released, strikes the cap, and explodes the cartridge. In the above connection it is particularly to be noted that each cartridge is to contain a charge of explosive, which is nicely proportioned to accomplish the work intended. On the explosion of the cartridge the gas generated thereby expands the shell and causes it momentarily to be frictionally held by the wall of the chamber of the barrel, aided by the pressure of the spring 25, and about the time the bullet reaches the muzzle the pressure on said shell is sufficient to loosen and expel the same by its reactive force, the bolt or breech-block being then thrown rearward against the pressure of the spring 25, which acts as a buffer to cushion and gradually check the recoil of said block. Upon this rearward action of the bolt, due to the reactive force of the exploding-charge, as stated, the carrier 18 is again operated to bring a new cartridge into line with the bore of the barrel, whereupon the bolt is again advanced by its spring to force said cartridge into the barrel, the firing-pin being then again set as above stated.

In a firearm of this description it is only necessary to withdraw the breech-block or bolt once by hand, and when the block has returned to its normal position, closing the breech of the barrel, the firearm being automatic in action, it is only necessary to pull the trigger until the supply of cartridges in one of the chambers of the magazine is exhausted, when the magazine is moved to bring its other chamber into position to supply cartridges *seriatim* to the carrier. The spring 25 is to be so proportioned that it will correspond with the reactive force of the gas generated by the explosion of the powder or other projectile-propelling agent.

Many changes may be made in the construction of the devices appertaining to my invention without departure therefrom, and the invention is not limited to the precise details of the bolt or breech-block mechanism nor to the means for releasing the firing-pin illustrated and described.

Having described my invention, I claim—

1. A firearm comprising a barrel; a bolt or breech-block automatically operated in one direction by the recoil of the cartridge-shell, due to the reactive force of the explosion of the charge; means for automatically advancing said bolt to cause it to close the breech after a cartridge has been inserted therein; a firing device; a sear for setting said device; and an independent rotative cam actuated by the trigger for withdrawing the sear.

2. A firearm comprising a barrel; a magazine; a carrier for conveying cartridges *seriatim* into position to be forced into said barrel; a bolt or breech-block operated in one direction by the reactive force of the explosion; a spring for automatically causing said bolt to close the breech after a cartridge has been inserted therein; a firing-pin; a sear for setting said pin; and an independent rotative device actuated by the trigger for withdrawing the sear.

3. In a firearm, the combination, with a magazine, of a carrier for conveying cartridges from said magazine to the barrel; a breech-block normally operating to close the breech; a firing-pin carried by said breech-block; means coöperating with the breech-block for automatically operating the cartridge-carrier on the recoil of said breech-block; a sear for setting the firing-pin; a lever connected to the sear; and an independent rotative cam device actuated by the trigger for withdrawing the sear.

4. In a firearm, the combination, with the barrel, of a bolt or breech-block; yielding means for automatically closing said bolt against the breech; a firing-pin having a shoulder; a multichambered magazine; means operated by the bolt for delivering cartridges from said magazine to the barrel; a sear movable in an opening of the frame and adapted to engage the shoulder on the firing-pin; a toothed wheel controlling the movement of the sear; and a trigger for actuating said wheel.

5. In a firearm, the combination, with a movable multichambered magazine, of a bolt normally held against the barrel by a spring to close the breech; a spring-actuated firing-pin carried by the bolt; a sear for setting said pin; a toothed device controlling the movement of said sear and serving to release the same; a trigger; and a pawl carried thereby for actuating said toothed device.

6. A firearm embodying a magazine having a plurality of separately-chargeable chambers for containing cartridges; a cover for locking said magazine and closing the opening in the frame; and a carrier movable in said opening in the frame and adapted to receive a cartridge from one of said chambers and to convey said cartridge into position to be fired.

7. In a firearm, the combination, with the barrel, of a reciprocatory breech-block or bolt having a lip on the lower part of its front end; an extractor carried by the bolt; a firing-pin; a magazine for containing cartridges; means for transferring a cartridge from the maga-

zine to the barrel; means for actuating the bolt; a sear; and a rotative toothed device for actuating said sear.

8. In a firearm, the combination, with the barrel, of a movable magazine having separately-chargeable chambers each having a cartridge-receiving opening; a carrier adapted to receive a cartridge from one of said chambers; means for actuating said carrier to bring a cartridge into line with the barrel; means for forcing the cartridge into the barrel and for exploding the same; and means for locking the magazine and simultaneously closing the cartridge-receiving opening in one of the chambers.

9. In a firearm, the combination, with the barrel and a magazine having a plurality of separately-chargeable chambers for containing cartridges, of a carrier; a device for actuating said carrier; a bolt for forcing a cartridge from the carrier into the barrel; a firing-pin carried by the bolt; a spring for actuating said pin; a sear adapted to engage a shoulder on the firing-pin; and an independent rotative cam actuated by the trigger for withdrawing the sear and thereby releasing the pin.

10. In a firearm, the combination, with the barrel, of a magazine having a plurality of separately-chargeable chambers for receiving cartridges; trunnions on which the magazine is revolubly supported; a carrier adapted to receive cartridges from either of said chambers; a bolt for forcing a cartridge from the carrier into the barrel; a pivoted lever positively actuated by the bolt in both directions said lever being connected to the carrier; and means for locking the magazine in position and also closing the openings to the chambers thereof.

11. In a firearm, the combination, with a barrel, of a movable magazine comprising a plurality of separately chargeable and dischargeable chambers; means for locking said magazine in position and closing openings therein; a carrier adapted to receive a cartridge from one of said chambers; and means for forcing said cartridge into the barrel and simultaneously depressing the carrier.

12. In a firearm, the combination, with the barrel, of a magazine revolubly mounted thereon and comprising a plurality of separately chargeable and dischargeable chambers; a carrier for receiving a cartridge from one of said chambers and for positioning the same adjacent to one end of the barrel; a bolt for forcing said cartridge from the carrier into the barrel, said bolt having shoulders on one of its sides; and a pivoted lever connected at one end to the carrier and having an arm adapted to be engaged by the shoulders of the bolt.

13. In a firearm, the combination, with the barrel, of a magazine movably mounted thereon, and means for simultaneously locking said magazine and closing the cartridge-receiving opening therein.

14. In a firearm, the combination, with the barrel, of a magazine revolubly mounted thereon and comprising a plurality of separately chargeable and dischargeable chambers having openings adjacent to the rear ends thereof for receiving cartridges, and a cover adapted to lock the magazine in position and to close said openings.

15. In a firearm, the combination, with the barrel, of a magazine revolubly mounted thereon and comprising a plurality of separately chargeable and dischargeable chambers having openings adjacent to the rear ends thereof for receiving cartridges; a cover adapted to lock the magazine in position and to close said openings; and means for retaining said cover in its open or closed position.

16. In a firearm, the combination, with the barrel and a chamber containing cartridges, of a carrier adapted to receive a cartridge from said chamber and to position it adjacent to one end of the barrel; a bolt for forcing said cartridge from the carrier into the barrel; an extractor for extracting a shell from the barrel during one movement of the bolt; a firing-pin coöperating with the extractor in the expulsion of an empty shell; a sear for setting said pin; and a rotative cam for withdrawing said sear.

17. In a magazine-firearm, the combination, with the barrel, of a carrier for receiving a cartridge from the magazine and positioning the same adjacent to one end of the barrel; a spring-actuated bolt for forcing the cartridge into the barrel; a firing-pin carried by the bolt; a spring-actuated lever for actuating said carrier during one movement of the bolt; and an extractor carried by the bolt and coöperating with the firing-pin in the expulsion of the cartridge-shell.

18. In a firearm, the combination with firing mechanism, of a sear movable in an opening of the frame and serving to retain the firing mechanism in set position; a pivoted lever connected to said sear; a trigger; and an independent rotative cam operated by said trigger for releasing said sear.

19. In a firearm, the combination, with firing mechanism embodying a firing-pin, a sear for retaining said pin in set position, of a trigger, and a pivoted lever connected to said sear and a device having a series of cam-faces for successively acting upon said lever and releasing the sear from the firing-pin.

20. In a firearm, the combination, with a bolt, of a firing-pin carried by said bolt; a sear for retaining said pin in set position; a pivoted lever connected to the sear and spring-actuated in one direction; a trigger; a disk having a series of teeth for successively acting upon said lever and releasing the sear; and a pawl carried by the trigger for engaging said teeth.

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