

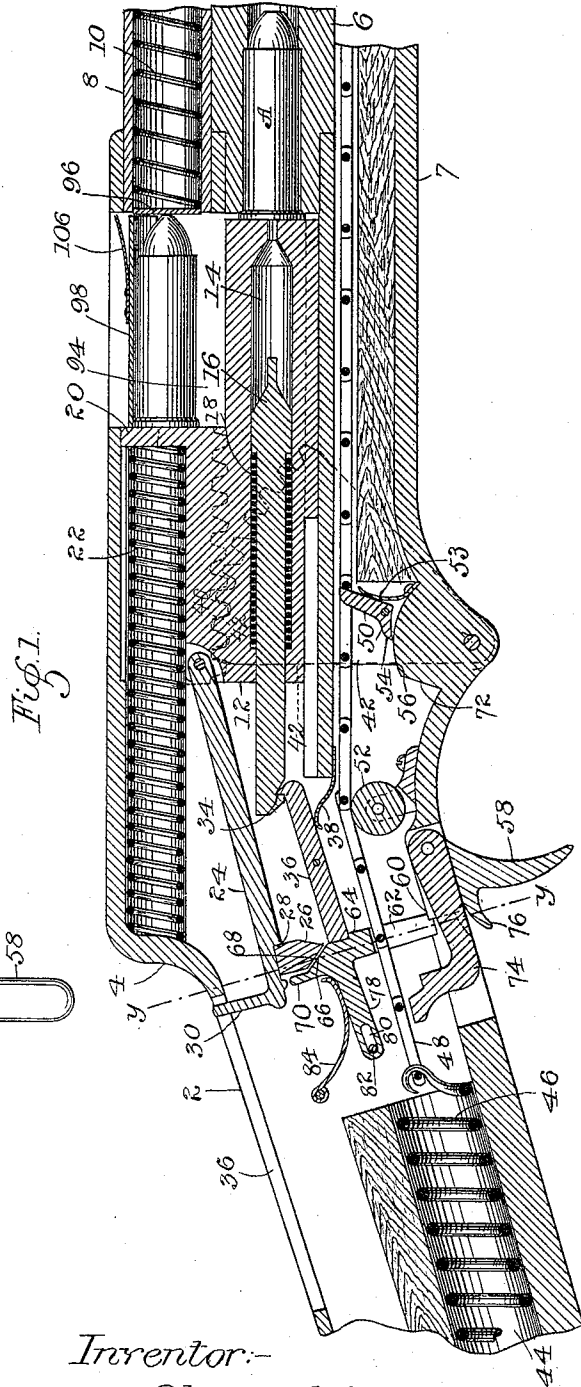
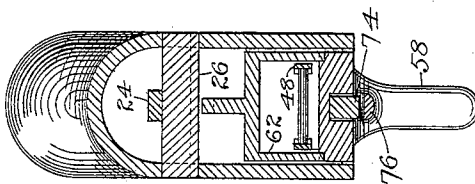
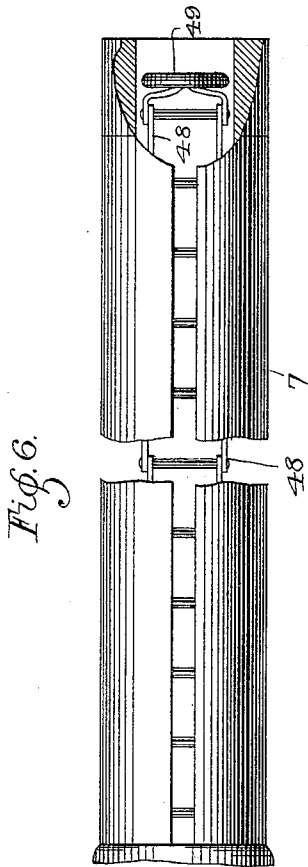
(No Model.)

3 Sheets—Sheet 1.

O. H. BENNETT.
RECOIL OPERATED MAGAZINE GUN.

No. 478,214.

Patented July 5, 1892.



Witnesses:-
C. D. Caldwell
B. R. Werden

Inventor:-
Oliver H. Bennett,
per, Paul Munroe
Attorneys.

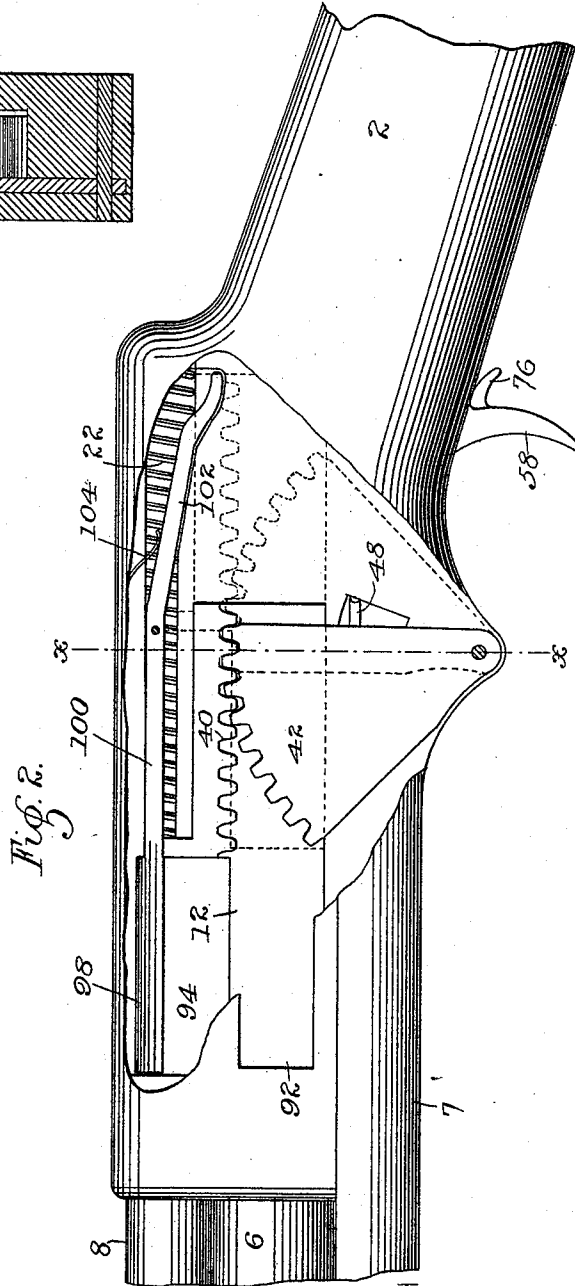
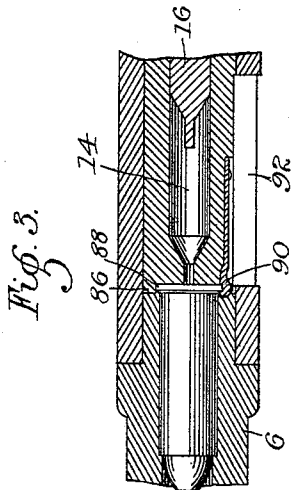
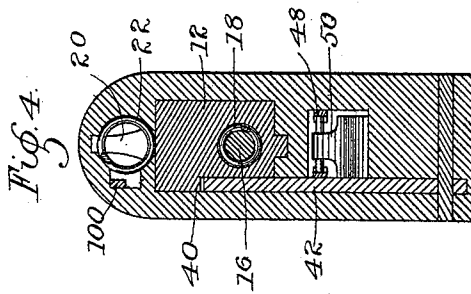
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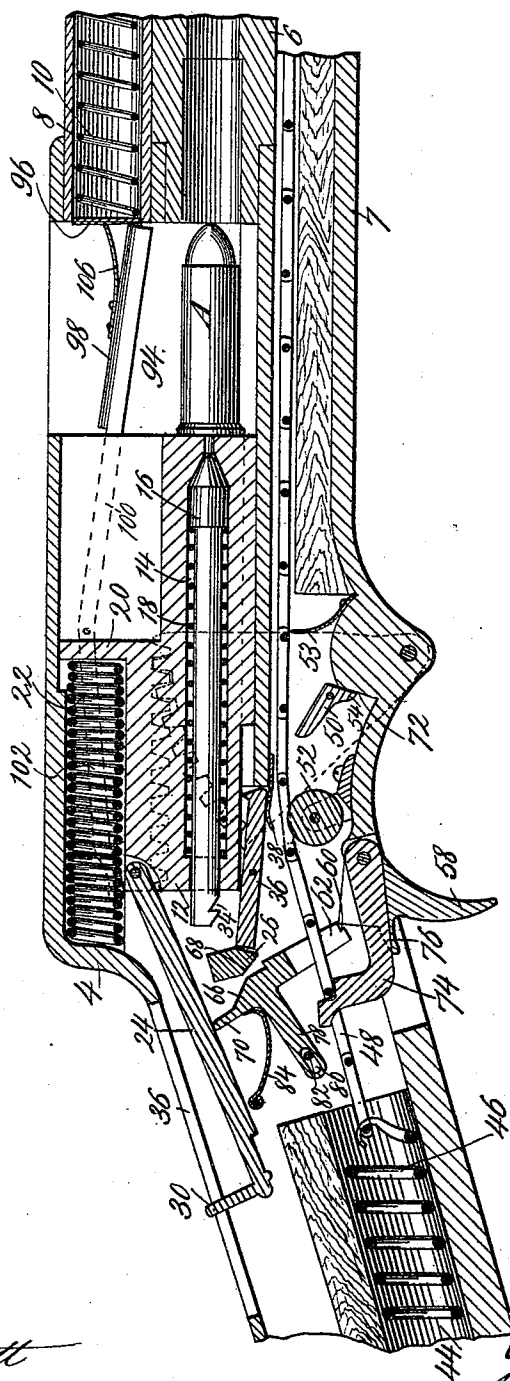
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Fig. 7.



Attest:

H. H. Schott
Alfred T. Gage.

Inventor

O. H. Bennett,
by Paul H. Merwin,
Att'y.

UNITED STATES PATENT OFFICE.

OLIVER H. BENNETT, OF JAMESTOWN, NORTH DAKOTA.

RECOIL-OPERATED MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 478,214, dated July 5, 1892.

Application filed April 1, 1891. Serial No. 387,233. (No model.)

To all whom it may concern:

Be it known that I, OLIVER H. BENNETT, of Jamestown, Stutsman county, North Dakota, have invented certain Improvements in Magazine-Guns, of which the following is a specification.

My invention relates to improvements in magazine-guns, both rifles and shotguns, its object being to provide means for automatically reloading the gun after its discharge, whereby all the cartridges in the magazine of the gun may be successively and rapidly fired without lowering the gun from its aim.

To this end my invention consists in arranging a strong extensible spring, preferably in the stock of the gun, provided with mechanism by which it can be drawn out or extended to its limit, and so connected to the breech-block of the gun that after the operation of firing the spring can be released, so that it contracts one step and throws the breech-block back and then is automatically disconnected, allowing the loading mechanism to operate to again charge the gun as actuated by a spring under constant tension, the operation being repeated until the magazine is exhausted and the spring has expended its force, when tension is again applied to it and the magazine recharged.

My invention further consists in the construction and combination hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical central longitudinal section of my improved gun, the rear end of the stock and the forward end of the barrel being broken off, showing the loading mechanism, the breech-block, and firing-pin, and the mechanism for automatically throwing back the breech-block after the discharge of the cartridge. Fig. 2 is a side elevation and partial section showing the gearing for operating the breech-block and the mechanism for carrying a cartridge ejected from the magazine downward in position to enter the barrel. Fig. 3 is a detail plan view of the firing-pin and the shell-extractor. Fig. 4 is a detail cross-section on line X X of Fig. 2. Fig. 5 is a detail cross-

section on line y y of Fig. 1; and Fig. 6 is a detail of the under side of the fore-arm of the gun, showing the slot in which the ring or handle of the link chain runs. Fig. 7 is a vertical central section showing the breech open.

In the drawings, 2 represents the stock of the gun; 4, the metallic frame or case, in which the loading and firing mechanism are inclosed; 6, the barrel of the gun; 7, the fore-arm, and 8 the cartridge magazine, arranged, preferably, parallel with and on top of the barrel and provided with the spiral cartridge-exPELLING spring 10 of the ordinary form. Arranged in the rear of the barrel and sliding within the case 4 is the breech-block 12, having a longitudinal opening 14 therethrough of suitable form and dimensions to hold and guide the firing-pin 16, and provided with the spiral spring 18, surrounding the firing-pin and serving to operate the same. Arranged within the case, with one end bearing against the case and the other against a shoulder or stop 20 of the breech-block, is the spiral spring 22, which tends to thrust the breech-block to its forward position against the rear end of the barrel, in which position it is locked by means of the shoulder 28 of the pivoted dog 24 engaging the fixed stop 26. An upwardly-extending spur or arm 30 upon the rear end of the dog 24 projects into the longitudinal slot 36 in the upper wall of the case or frame, which serves as a guide to hold the dog in its proper position as the block moves forward and back, and also furnishes means by which the spur can be engaged from the outside of the case to pull back the breech-block. The firing-pin 16 projects through the rear end of the breech-block and is provided with a catch 34, which is engaged when the pin is in its backward position by the dog 36, having a spring 38, which tends to hold it in engagement with the catch. The breech-block is fitted with the rack 40, (see Fig. 2,) with which engages the segmental gear 42, by the turning of which the block is withdrawn or thrown backward.

Arranged in the cylindrical opening 44 in the stock 2 (see Fig. 1) is the spiral retracting-spring 46, having its rear end suitably

secured in the stock and its forward end free to move in the opening. Connected to the forward end of the spring is the link chain 48, extending forward inside the fore-arm 7; and provided with suitable means—such as a ring 49—for pulling the same forward, so as to extend the spring 46, the ring or handle depending and running in the slot 51.

The segmental gear 42 carries a pivoted dog 50, which projects through and engages the cross-bar of the link of the chain standing above the same, and thus holds the chain from being drawn backward by the spring 46. The dog 50 is provided with a rearwardly-extending shoulder or spur 54, which bears upon the fixed segment 56, rigidly secured to the frame or case and concentric with the segmental gear, and prevents the dog from being turned backward when engaged by the chain, while it can turn through a sufficient angle forward against the tension of the spring 53 to allow the links of the chain to pass over it when being drawn forward. In order that the end of the chain connected with the retracting-spring 46 may move in alignment with the axis of the spring, I prefer to arrange within the case 42 an idler drum or roll 52, over which the chain travels and is held in proper position.

The trigger 58 is pivoted to the case in the ordinary manner and is provided with a shoulder 60, bearing against the plunger 62, which extends upward through the case and is provided with a shoulder 64, engaging the rear end of the dog 36, whereby as the trigger is pulled the plunger is thrust upward, raising the dog and releasing it from the catch 34. The upper end of the plunger is provided with a bevel face 66, which with the upward movement of the plunger strikes against a similar bevel face 68 of the stop 26, which serves to throw the plunger backward and away from the dog 36, thus allowing the dog to be freed from the shoulder 64 and to be thrown back into its normal position by the spring 38. With the continued upward movement of the plunger its spur 70 strikes against the dog 24 and lifts it out of engagement with the stop 26. When the dog is thus freed from the stop, the retracting-spring 46, acting upon the dog 50, serves to turn the segmental gear 42, which, engaging with the rack 40, throws the breech-block backward in the case, the segment 56 being cut away at 72 to allow the dog 50 to turn backward out of engagement with the chain links. In order to prevent the chain 48 from being entirely freed, so as to permit the spring 46 to contract to its limit when thus disengaged from the dog 50, I prefer to provide the stop 74, arranged in an opening in the rear of the trigger, and bearing on the same pivot which is engaged and thrust upward by means of the cam-shaped shoulder 76 upon the trigger. This stop engages the chain and serves to stop and hold it until the dog 50 has returned to its original position, as shown by the full lines in Fig. 1, so as to engage the

next link of the chain. Upon releasing the trigger the stop 74 drops downward away from the chain.

In order to hold the plunger 62 normally in its downward and forward position, I prefer to provide it with a rearwardly-extending arm 78, having a slotted pivot-hole 80, through which a pivot-pin 82 passes and secures it in the case, and upon which the plunger turns and slides laterally in operating, as described. A spring 84 bears against the plunger and serves to thrust it forward and downward when the trigger is released, and also to throw the trigger into its forward position.

As shown in Fig. 1, the gun has just been charged with a cartridge, the firing-pin is drawn back, and the mechanism is in position for discharging the gun by the pulling of the trigger, another cartridge being in position as thrown out of the magazine ready to be delivered to the loading mechanism after the discharge of the cartridge in the barrel. In order to automatically withdraw the shell from the barrel after the cartridge is discharged, the breech-block is provided with a projection or shoulder 86, which bears against the edge of the rim 88 of the cartridge-shell, and also with a spring-extractor arranged opposite the projection 86, adapted to slip over and hook upon the rim when the breech-block is thrust forward against the cartridge. Upon the throwing back of the breech-block, as heretofore described, the extractor draws with it the empty shell, and when the outer end of the shell is freed from the barrel the spring hook or extractor tends to give the shell an outward lateral turn or throw, by means of which it is ejected from the side opening or port 92. In order to deliver the cartridges successively from the magazine to the loading mechanism, the spring 8, which is compressed by the inclosed cartridges, thrusts them backward and into the space 94 in front of and above the breech-block and at the rear of the barrel. The cap 96, carried by the spring 8, bears against the end of the cartridge and is of such size that it cannot pass beyond the end of the magazine into the space 94. Arranged above and partially embracing the cartridge as it is thrust out of the magazine is the carrier 98, being a semi-cylindrical cap or hood. Extending rearwardly from this carrier is the pivoted lever 100, having a downwardly-extending arm 102, against which the top of the breech-block strikes in its backward movement, thereby lifting it and forcing downward the carrier 98 with its inclosed cartridge. In some cases the empty shell just extracted from the barrel may not be thrown entirely out of the gun and is in the way of the loaded cartridge thus carried down. To prevent its obstructing the working of the machine, I prefer to make the lever-arm 102 of spring metal, so that it will yield and permit the block to be thrown backward before the passage for the lower cartridge is entirely clear, the pressure of the cartridge upon the

shell assisting in ejecting the shell from the gun. A spring 104, arranged to bear downward upon the lever 102, tends to return the carrier to its normal or raised position with the return movement of the breech-block.

I prefer to arrange on the top of the carrier a spring-stop 106, which bears against the head of the adjacent cartridge in the magazine as the carrier descends and prevents its being thrown outward above the carrier, and serves, also, as a stop for the shells in the charging of the magazine.

The operation of loading and firing is as follows: The carrier 98 being depressed against the tension of the spring 104, the cartridges are successively forced into the magazine over the spring 106, which yields to permit their entrance, but springs upward to prevent their being thrown outward, the spring 10 being gradually compressed until the magazine is filled. The carrier then being released is thrown upward by its spring 104, and the spring 10 serves to eject the first cartridge in the magazine into the space 94 beneath the carrier in the position as shown in Fig. 1. The chain 48 is then pulled forward by means of its handle or ring 49 until the spring 46 is extended to its limit. On the chain being released the dog 50 engages the cross-bar of the adjacent link and holds the chain from being drawn backward by the spring. The trigger 58 then being pressed, its shoulder 60 is thrown upward, carrying with it the plunger 64, which turns the dog 36 on its pivot to release the firing-pin 16, whereupon its spring 18 throws it forward into the chamber or opening. In the further upward movement of the plunger 64 its bevel face 66 is brought into contact with the face 68 of the stop 26, by means of which it is thrown backward laterally, sliding upon the pivot-pin 62 and allowing the shoulder 64 to pass by the dog 36, which, being thus freed, is returned to its normal position by its spring 48. With the further movement of the plunger its spur 70 impinges upon the projecting end of the dog 24, lifting it until the shoulder 28 is raised above the stop. Thereupon the spring 46, acting through its connected chain 48 upon the dog 50, turns the segmental gear 42 backward, which, engaging the rack 40, carries with it the breech-block. The shoulder 20 upon the breech-block bears against the spring 22, which is compressed with the movement of the breech-block, the springs 46 and 22 therefore acting in opposition to each other. As the dog 50 passes around to the cut-away portion 72 of the segment 54 it drops downward out of engagement with the cross-bar 51 of the chain, which passes over it. At the same time the cam 76, acting upon the stop 74, serves to force it upward and into engagement with the chain and to check its further backward movement. The breech-block in its backward movement carries with it the firing-pin 16 until it is engaged and held by the dog 36, and also actuates the carrier 98, as described, by striking

the lever-arm 102, whereby the inclosed cartridge is carried downward and into position before the opening of the barrel and in front of the breech-block. When the dog 50 is released from engagement with the cross-bar of the link of the chain as it drops downward at the rear end of the segment 54, the spring 22 acts to throw the breech-block again forward, forcing the cartridge into the barrel and the extractor into engagement with its rim. At the same time that the cartridge-carrier 98 returns to its upward position, the spring 10 throws another cartridge outward underneath it, and the parts are then in the position shown in Fig. 1, except that the spring 46 has moved back one step or the length of one link of the chain. Upon pulling the trigger a second time the same operation is performed, the firing-pin discharging the cartridge in the barrel and the breech-block in its backward movement extracting the discharged shell and ejecting it through the opening 92 in the side of the case. This operation may be repeated until all of the cartridges in the magazine are exhausted and the successive tripping has allowed the spring 46 to expend its force. The magazine may then again be filled as before, and the spring 46 extended to its limit by means of the chain 48 in preparation for another series of operations.

I claim—

1. In an automatic magazine-gun, the combination of the breech-block, the spring actuating the breech-block to throw it forward to load the gun, and the retracting-spring to move the breech-block backward to withdraw an exploded shell, substantially as described.

2. In an automatic magazine-gun, the combination of the breech-block, the spring actuating the breech-block to press it forward, the retracting-spring, and the intermediate mechanism connecting the retracting-spring and the breech-block, substantially as described.

3. In an automatic magazine-gun, the combination of the breech-block, the spring actuating the breech-block to press it forward, the retracting-spring, and the gear-and-rack-mechanism connected with the breech-block, and the retracting-spring to convey the energy of the latter to the former, substantially as described.

4. In an automatic magazine-gun, the combination of the breech-block, the spring actuating the breech-block to press it forward, the retracting-spring, the chain connected with the said spring, the rack attached to the breech-block, the segmental gear engaging with the said rack, and the means for successively connecting and disconnecting the chain with the segmental gear, substantially as described.

5. In an automatic magazine-gun, the combination of the breech-block, the spring actuating the breech-block to press it forward, the retracting-spring, the rack secured to the breech-block, the segmental gear engaging with the said rack, the chain connected with

the retracting-spring, and the dog pivoted to the segmental gear, adapted to engage with the successive links of the free end of said chain, substantially as described.

5 6. In a magazine-gun, the combination of the casing, the spring-actuated breech-block carried therein, the retracting-spring, the rack attached to the breech-block, the segmental gear engaging with the said rack, and the chain
10 connecting the retracting-spring with the segmental gear, substantially as described.

7. In a magazine-gun, the combination of the breech-block, the spring operating to press the breech-block forward, the retracting-spring, the rack attached to the breech-block,
15 the segmental gear engaging with the said rack, the chain successively connecting and disconnecting the retracting-spring with the segmental gear, and the locking mechanism
20 consisting of the stop secured within the casing, the dog pivoted to the breech-block and adapted to engage with the said stop, the plunger adapted to disengage the said dog, and the trigger for operating the plunger, substantially
25 as described.

8. In a magazine-gun, the combination of the spring-actuated breech-block, the rack attached to the breech-block, the segmental gear engaging with the said rack, the retracting-spring, the mechanism for successively
30 connecting and disconnecting the said spring with the segmental gear, consisting of the chain attached to the retracting-spring, the dog pivoted to the segmental gear, adapted to engage with the said chain and after moving
35 with the said gear a short distance to release the chain, the stop adapted to engage with the chain as it is released by the dog, and the trigger for operating the said stop, substantially as described.
40

9. In a magazine-gun, the combination of the breech-block, the spring operating to press the breech-block forward, the dog adapted to hold the breech-block in its forward position,
45 the spring-actuated firing-pin carried by the breech-block, the dog adapted to engage with the firing-pin, the plunger adapted to release the firing-pin and the breech-block successively from their respective dogs, and the trigger
50 operating the plunger, substantially as described.

10. In a magazine-gun, the combination of the breech-block, the spring operating to press it forward, a dog adapted to hold the breech-block in its forward position, the spring-actuated firing-pin carried by the breech-block,
55 the dog adapted to engage with the firing-pin, the plunger adapted to release the firing-pin and the breech-block successively from their respective dogs, the trigger operating the plunger, the rack attached to the breech-block, the segmental gear engaging with the said rack, the retracting-spring, and the chain successively connecting and disconnecting the retracting-spring with the segmental gear, substantially as described.
65

11. In a magazine-gun, the combination of

the breech-block, the spring operating to force the same forward, the spring-actuated firing-pin, the top fixed within the casing, the dog
70 pivoted to the breech-block and adapted to engage with the said stop, the dog adapted to engage with the rear end of the firing-pin, the retracting-spring, the rack attached to the breech-block, the segmental gear engaging
75 with the said rack, the chain attached to the retracting-spring, the dog pivoted to the segmental gear and adapted to engage successively with the links of the said chain, the stop adapted to hold the chain against the
80 action of the spring while the dog is releasing a preceding and engaging with a succeeding link, the plunger operating to disengage the dogs of the breech-block and firing-pin, and the trigger for operating the plunger and stop,
85 substantially as described.

12. In a magazine-gun, the combination of the breech-block, the spring-actuated firing-pin carried by the breech-block, the spring operating to press the breech-block forward,
90 the spring operating to withdraw the breech-block against the action of the first-mentioned spring, the rack attached to the breech-block, the segmental gear engaging with the said rack, the chain successively connecting and
95 disconnecting the retracting-spring with the segmental gear, the stop secured within the casing, the dog pivoted to the breech-block and adapted to engage with the said stop, the dog adapted to engage with the firing-pin, a
100 plunger adapted to successively release the said dogs from their engagements, and the trigger operating the said plunger, substantially as described.

13. In a magazine-gun, the combination, with
105 the reciprocating breech-block, of a cartridge-carrier adapted to receive cartridges from the magazine and convey them to the breech-block, having an elastic operating-lever located to be actuated by the breech-block, substantially
110 as described.

14. In a magazine-gun, the combination of the breech-block, the spring operating to press the same forward, the spring-extractor secured to the forward end of the breech-block,
115 adapted with a shoulder of the latter to grasp the shell of a cartridge, and the mechanism for withdrawing the exploded shell from the barrel by moving the breech-block backward against the action of the first-mentioned
120 spring, consisting of the retracting-spring, the rack attached to the breech-block, the segmental gear engaging the said rack, and the chain connecting the retracting-spring with the segmental gear, substantially as described.
125

15. In a magazine-gun, the combination of the casing, the breech-block carried therein, the spring operating to press the breech-block forward, the magazine, the cartridge-carrier operated by the breech-block, and the spring-
130 stop secured to the top of the carrier, substantially as described.

16. In a magazine-gun, the combination, with the breech-block, of a spring tending to throw

the same forward to load the gun, a dog automatically locking the block in the forward position, mechanism operated by the trigger for tripping said dog, a rack upon said block, 5 a segmental gear engaging said rack and adapted to throw said breech-block, a retracting-spring, means for applying tension thereto, means for connecting it to said segmental gear whereby when the breech-block is released 10 it expends its force to throw the same back, and means through which may be restored the tension of said retracting-spring, substantially as described.

17. In a magazine-gun, the combination, 15 with its reciprocating breech-block, of an actuating-spring tending to throw it forward,

mechanism for automatically locking it in its forward position, means for tripping said locking mechanism, a rack upon said block, a segmental gear engaging with said rack, means 20 for applying stored energy to said gear to retract said block when the locking mechanism is released, and means through which may be restored said energy, substantially as described. 25

In testimony whereof I have hereunto set my hand this 23d day of March, A. D. 1891.

OLIVER H. BENNETT.

In presence of—

T. D. MERWIN,
A. MAE WELCH.