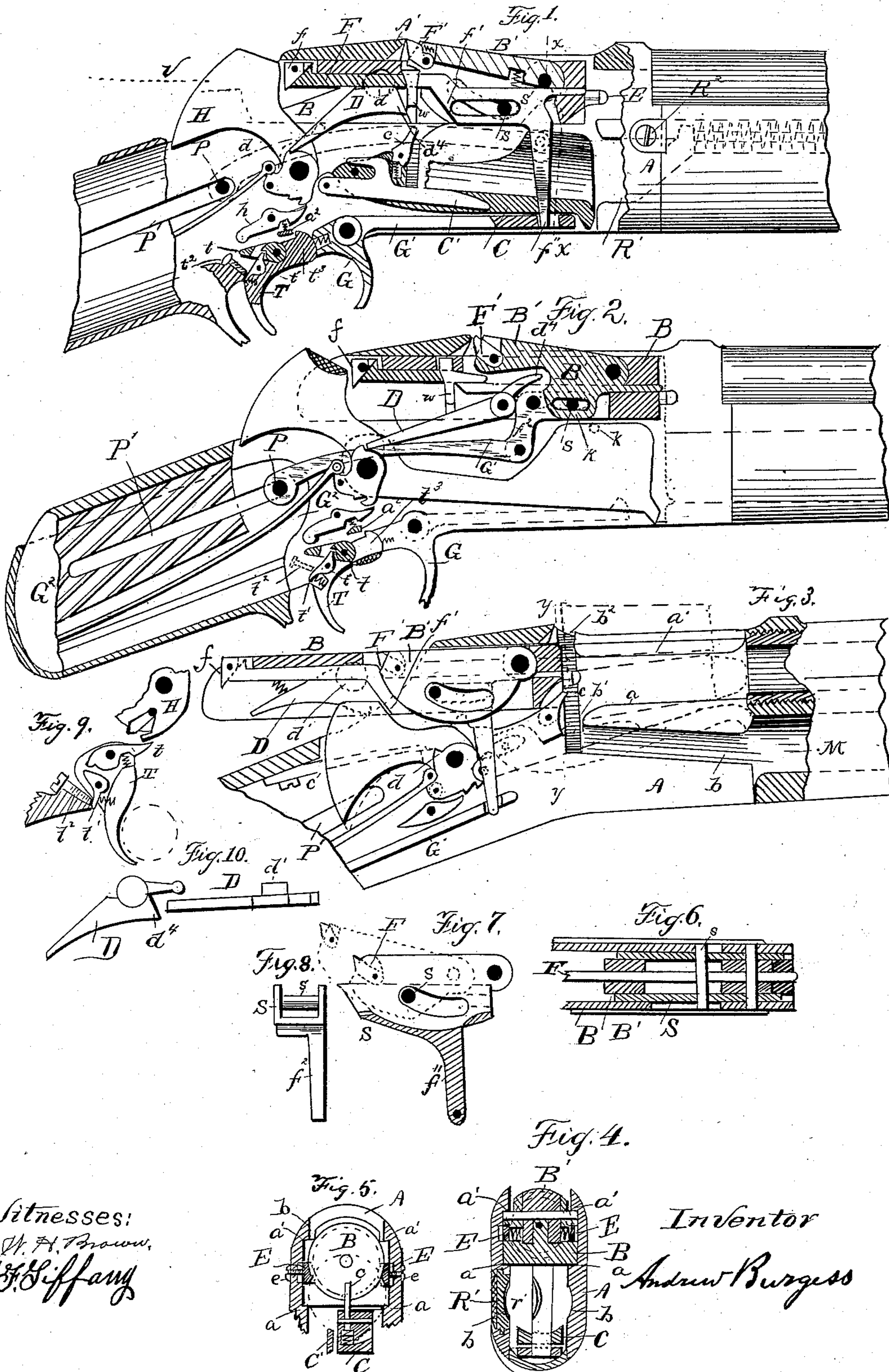


(No Model.)

A. BURGESS.
MAGAZINE FIRE ARM.

No. 366,562.

Patented July 12, 1887.



Witnesses:
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MAGAZINE FIRE-ARM.

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To all whom it may concern:

Be it known that I, ANDREW BURGESS, a citizen of the United States, residing at Owego, in the county of Tioga and State of New York, have invented certain new and useful Improvements in Magazine Fire-Arms, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to magazine fire-arms, and has for its object ease, rapidity, and certainty of action; and it consists of various new and modified devices and improvements, hereinafter more fully set forth and described.

Figure 1 is a longitudinal sectional elevation of this arm with breech closed. Fig. 2 is a partial longitudinal vertical section, the broken end of stock being in perspective and some parts in elevation. Fig. 3 shows a side section of the frame, with the bolt in section and the parts in an open position. Fig. 4 is a cross section on line *xx* of Fig. 1; Fig. 5, a cross-section on line *yy* of Fig. 3. Fig. 6 is a plan section through the forward part of the bolt, brace, and slide. Fig. 7 is a side section of the slide and brace. Fig. 8 is a view of the front end of slide. Fig. 9 shows a modification of the trigger and sear. Fig. 10 is a detached side and plan view of the cocking dog.

A is the frame; *aa* and *a'a'*, ledges therein; B, the bolt; B', the brace; *b*, *b'*, and *b²*, depressions on the inside of the frame; C, the carrier; C', a lever attached to the carrier; *c*, a projection at the top of the carrier, and *c'* a spring to raise the carrier; D, the cocking-dog; *d*, the notch for its engagement in the hammer; E E, the extractors; *ee*, the extractor grip-screws; F, the firing-pin; F', the fly or cam in the brace; *f*, the half-cocking fly; *f'*, the projection in the bolt for full-cocking the hammer; *f''*, an arm on the firing-pin or slide-piece for connecting the sliding handle to the breech mechanism. G is the sliding guard; G', the operating-rod. H is the hammer; *h*, the sear; T, the trigger; *t*, its engaging-piece; *t'*, its pawl; *t²*, the pawl-stop, and *t³* its hook. S is a sliding-piece to turn the brace; *s*, the pin which connects the sliding-piece or firing-pin to the brace, and *s'* a spring between the brace and firing-pin; R', the loading-trap, and *w* a wedge to start back the firing-pin. This arm is provided with a bolt which reciprocates

in the top part of the frame and locks by a block or brace, B', which turns upward to engage forward of a locking-shoulder, A', in the top of the frame.

The locking-block has a fly or cam, F', which projects from its rear face and engages the locking-shoulder A' rearward of the brace as said brace is turned up to lock the breech, and thereby forces the brace and bolt forward, so that the rear or locking face of the brace remains forward of its locking-shoulder; but the rear of the fly has then raised so high on the locking-shoulder and above its axis, as shown in Fig. 1, that it will not resist a backward or downward movement of the brace, as the fly is free to turn back and upward by any force which recoils the bolt; but the recoil of the bolt is limited to the space between the locking-shoulder and brace obtained by the fly or cam, as aforesaid, and said space may be greater or less, as required.

A cam, oblique slide, or spring may be used as an equivalent of the fly here shown and located in the locking shoulder or bearing in the frame; or any other known locking device may be used by mere mechanical change in construction. The brace is held in its locked position by elastic force of the spring *s'*, which is seated on the firing-pin, and bears upward against it; or the fly-spring, as shown in Fig. 1, may be made strong enough for the purpose.

A cocking-dog, D, is hung in the bolt by a projection, as *d'*, which passes through the side of the bolt, Figs. 1 and 10, or a pivot, as in Fig. 2, and has an arm which projects downward to engage the hammer, as by its projection *d*, Fig. 1. The cocking-dog is turned into engagement with the hammer when the breech is being closed by the movement of the firing-pin over it, as in Fig. 1, or any of the parts as they move to close or lock the breech; or a spring may be used for that purpose, as in Fig. 3, and the dog is released from the hammer by the breech mechanism in unlocking the breech, as by the unlocking-brace, when constructed as in Figs. 2 or 10, or by the rearward movement of the firing-pin, in Fig. 3.

When the gun is fired in the position shown in Fig. 1, the discharge forces the bolt, brace,

and cocking-dog to recoil violently in the frame until the rear of the brace strikes the recoil-shoulder A', which stops and holds them in a locked position; but the cocking-dog in its recoil drives back the hammer to 5 cock it by its engagement therewith, substantially as aforesaid, so that the breech is free to be unlocked and opened without obstruction from the hammer or mainspring, 10 and when the bolt is moved forward to close the breech the dog D is again turned down forward of the path of movement of the shoulder *d* of the hammer as the fly F' forces the bolt to its extreme forward position.

15 A pin, *s*, is guided to a short longitudinal movement in the bolt, and enters an oblique slot of the locking-brace, so that the backward movement of the pin *s*, bearing down in said slot, forces the rear of the brace inward 20 toward the axis of the bolt and below the shoulder A' to unlock it, when the bolt is free to be moved back and forward by said pin or otherwise, and when the bolt is in its forward position the pin moves forward in the bolt 25 and brace to bear up the brace by engaging the upper wall of its slot to lock the bolt. I move the pin *s*, as described, by fixing it in the firing-pin, or a sliding piece, as S, and extend an arm, *f*", downward, to be engaged by 30 an operating-rod, as G', which is reciprocated in the frame by a handle connected therewith. It is apparent that the construction may be either in the position shown in full or in dotted lines, Fig. 1. I elongate the slot in 35 the brace and bolt forward of the pin *s*, as seen in dotted line, Fig. 1, to allow the bolt to recoil over it; so as not to move the slide or arm *f*" or operating-rod.

40 I here show the operating rod attached to a sliding guard or a sleeve on the small of the stock; but it may be moved to operate the breech in a similar manner by connecting it to a sliding handle of any usual construction.

45 As the breech may be opened without discharging the gun or using the dog D, I hang a fly, *f*, in the rear of the bolt, (I here show it pivoted to the firing-pin,) which turns back the hammer by bearing against its face by the first backward movement of the bolt in open- 50 ing the breech to turn the hammer-face back and down to the level of the line *v*, as shown in dotted lines in Fig. 1, where the hammer is held by the sear at half-cock, so the solid rearward part of the bolt and the firing-pin may 55 travel over the top of the hammer until the downward projection *f*' in the bolt engages the hammer to move it again backward to full-cock, as shown in Fig. 3. By this construction the force to cock the hammer is 60 only used in the first and last parts of the backward movement of the bolt.

65 The extractors E E are arranged on each side of the bolt to turn in to grasp and withdraw the shells. It will be seen that I place them a little below the axis of the barrel, so they may grasp the shell only from about its

center downward, so that said shell may be easily thrown upward sidewise when withdrawn, and the lower parts of the inside of the necks of the extractors are underscored, as 70 shown in cross section, Figs. 4 and 5, to receive the flange of the feeding cartridge as it is raised by the carrier, as shown in broken lines, Fig. 5, and the grip-screws or other rigid 75 stops to prevent the spread of the extractors at their extreme rearward movement hold the flange of said feeding cartridges rigidly against the face of the bolt, so its flange can rise no farther, and the hooked part of the extractors 80 holding the rear of cartridge-head flush against the face of the bolt the forward end can not fly up. By this construction I am enabled to eject the shells and feed the cartridge from the magazine by opening the breech no farther 85 than the distance of the length of the cartridge. One extractor alone may be thus used and produce the same result.

The carrier is pivoted in the rear part of the frame to raise the cartridge on its front part from the magazine to the barrel, and has a 90 spring-ejector, *c*, pivoted in the carrier to spring forward when no cartridge is on the carrier, but easily pressed back by force of the magazine-spring when a cartridge is thrust against it, so that it remains in its forward po- 95 sition only when the carrier rises empty, in which case it inclines forward through a slot in the face of the bolt as the carrier rises to strike the flange of the extracted shell and expel it upward; but when the carrier raises a 100 cartridge said cartridge strikes the shell to expel it, as shown in broken lines in Fig. 3. A lever, C', is pivoted in the frame near the pivot of the carrier, and the carrier has a projection 105 more remotely from its pivot to enter a slot of said lever for engagement therewith, so that the long forward arm of the lever is carried thereby above the floor of the carrier, as shown in broken lines in Fig. 3, to raise the head of 110 the cartridge and thereby present said cartridge more nearly in alignment with the bore of the gun.

The lever C' may be hung in the carrier and the stud fixed in the frame to engage it by a mere reversal of parts. A spring, as *c*', is ar- 115 ranged to raise the carrier, and the arm *f*" also strikes it at a point above its pivot to assure its rising at the proper time, and it is lowered by the bolt closing against its top or its stud *c*.

The mortise in the bottom of the frame is 120 narrower than the diameter of the cartridge-flange, but wide enough to admit its body, and a depression, *b*, is made to extend back in the frame from the mouth of the magazine M the length of a cartridge, and a passage, *b*', ex- 125 tends upward from said depression, so the flange may rise therein when raised by the carrier; but it will be then stopped by the extractors, as shown in Fig. 3, and which there grasp it rigidly, as before explained; but as the 130 bolt starts forward the extractors leave the rigid grip and can spread outward, so that as

the cartridge starts forward by being driven by the bolt the flange is forced up the incline on the rear of ledges a , to spread the extractors and enter between them, so as to align with 5 and enter the barrel.

When extractors are constructed with necks scored out inside, as shown, the extracting shell-head might escape upward before reaching its passage b^2 ; but I narrow the top opening in the frame by the projections $a' a'$, or 10 leave it the width of the mortise in the frame, as before explained, so the flange can only rise when it reaches the passage b^2 , when the shell is thrown out sidewise, as set forth.

When this arm is cocked by the recoil of the bolt, it is not necessary, when heavy charges are used, that the bolt or its cocking-dog D should travel the whole distance to be made by the abutment d of the hammer, as the quick 20 impulse given by the shock of the discharge imparts a momentum to the hammer which carries it back beyond the limit of movement of the dog, where its force will be stopped by its back part striking the mainspring, as indicated in Fig. 3, which then serves as an 25 elastic buffer, or a special buffer may be arranged to receive it. A special construction of trigger or sear is preferable in this automatic cocking of the hammer, as the ordinary 30 trigger and sear would not be released in time to catch the hammer to hold it cocked when thrown back, as described; but I pivot an auxiliary sear, t , on the trigger T, or in the guard-strap, and a pawl or spring-catch, as t' , 35 is arranged in the trigger to engage and hold the sear-piece t rigid with the trigger while the trigger is being pulled to release the hammer to fire the gun; but the sear-piece is then 40 released to swing down in the trigger when the pawl t' reaches the set-screw t^2 , to be turned and released from engagement with the sear-piece t by set-screw t^2 , or other abutment in the guard, so that it no longer bears with sufficient force to contract the sear-spring, and the 45 sear will spring into its notch in the hammer when thrown back, as above, although the trigger is still pulled back to its rearmost limit.

In Fig. 9 the rear extension of the sear 50 serves also as the sear-piece t , by being pivoted in the trigger with its spring therein, and having a notch in its rear for the engagement of the pawl t' .

The parts are here shown as when the gun 55 has been "pulled off" and force is still applied to the trigger, thereby releasing the pawl and leaving the sear in position to spring into the notch of the hammer when it shall be cocked.

In the construction as shown in Figs. 1 and 2 the sear-piece is free to turn upward when the pressure on the trigger is removed and the inner upward surface of the pawl is made eccentric with its pivot, so as to cam the sear-piece back to the pulling position, when the 65 pawl springs into its notch, as in Figs. 1 and 2. The trigger has also a hook, t^3 , Figs. 1

and 2, to engage a shoulder, as a^2 , in the frame, to lock the guard forward; but pulling the trigger turns down the hook to unlock it. 70

I show, but omitted to claim, the above construction of trigger and sear in my application Serial No. 168,819, completed June 15, 1885. I also claim in said application, broadly, the 75 cocking of the hammer by the limited recoil of the bolt, to which I herein make claim, but limited to the construction here described.

In Figs. 1 and 2 I show a wedge, w , arranged in a vertical path in the bolt, which has an inclined rear surface to bear against an inclined 80 abutment in the firing-pin when the firing-pin is in its foremost position, and the wedge w has an arm projecting in the path of movement of the locking-brace, to be thereby engaged and 85 pressed down to wedge the firing-pin backward in the bolt.

In the modifications shown in Fig. 2 a bell-crank lever, K, is pivoted in the bolt, and has a downward-projecting arm connected with the operating-handle to turn said lever on its 90 pivot and operate the brace by its horizontal arm which engages the brace, and said arm engages a fixed projection, as k , in the frame in turning to unlock the breech to cam back the bolt. This bell-crank lever in its locking combinations I do not claim in this application, the 95 same forming part of my application Serial No. 173,569, of August 4, 1885.

The cocking-dog has a projecting arm, d^4 , forward of its pivot, to be engaged by the brace 100 to operate as a lever to throw the dog into and out of engagement with the hammer in its movement of locking and unlocking the breech.

In Fig. 2 a pin or screw, P, is shown, which connects the rear of the operating-rod to the 105 sliding handle G^2 on the small of the stock. This serves to support the sides of the slide G^2 against each other, (by the pin,) so it may be made less rigid, or serve in place of the solid part over the top of the small of the stock 110 to strengthen the sliding shield and keep it from bearing with too much friction on the stock. This pin passes through a slot, P', in the small of the stock.

I claim— 115

1. In a breech-loading fire-arm, a breech-piece, a brace to lock said breech-piece, a bearing in the top of the frame against which the brace locks the breech-piece, and a fly hung to project between said bearing and brace and 120 acting as a rigid cam in the locking movement, all in combination, to force the breech-piece forward of its locking position, substantially as specified.

2. In a breech loading fire-arm, a reciprocating bolt and means, substantially as described, to force said bolt forward of its locking position in the frame, whereby the locking-piece and its bearing are separated, in combination with a dog or connection which is hung 125 independently of the locking mechanism in the rearward part of the bolt and operates to cock the hammer by the reaction of the parts in discharging the gun. 130

3. In a breech-loading fire-arm, a reciprocating bolt and means, substantially as described, to force said bolt forward of its locking position, in combination with a cocking-lever hung in the bolt independently of the locking-piece, and having an arm which extends into the line of movement of the locking-piece for engagement thereby, so that in the locking of the bolt the cocking-lever is turned into engagement with the hammer by the locking-piece and in the unlocking of the bolt out of such engagement.

4. In a breech-loading fire-arm, a breech-piece, a brace to lock said breech-piece, a bearing in the top of the frame against which the brace locks the breech-piece, and a fly hung to project between said bearing and brace, all in combination, to force the breech-piece forward of its locking position, and a cocking dog or lever which is thrown into connection with the hammer by the movable mechanism of the breech in closing, substantially as specified.

5. In a breech-loading fire-arm, a reciprocating bolt, a brace swinging upward to lock said bolt against a shoulder in the top of the frame, in combination with an arm which extends downward from a sliding piece in the bolt, said piece having oblique or wedging engagement with a bearing in the frame, said arm to be engaged by a reciprocating operating-piece below the bolt, and a handle to operate the bolt and brace, substantially as described.

6. In a breech-loading fire-arm, a reciprocating bolt, a brace swinging upward to lock said bolt against a shoulder in the top of the frame, in combination with an arm which is attached to a slide carrying a pin in the bolt to vibrate the locking-brace, and which extends downward to be engaged by a reciprocating operating-piece below the bolt, and a handle to operate the bolt and brace, substantially as described.

7. In a breech-loading fire-arm having a hammer pivoted below the bolt, a reciprocating bolt having an abutment at its upper rear end to start back the hammer to half-cock, substantially as described, in combination with a lower forward abutment, as f' , in the bolt to carry the hammer from half to full cock by the last part of the rearward movement of the bolt.

8. In a breech-loading fire-arm, a reciprocating bolt, a brace pivoted to said bolt to swing outward from the axis of the bolt to lock the breech against a shoulder in the frame, an operating-rod which reciprocates in the frame to move said brace, and a fly arranged in the rear end of the bolt to bear the hammer back and downward below the line of movement of the parts near the rear of the bolt other than the fly aforesaid, and a sear to hold the hammer in said downward position, so it shall remain out of contact with the bolt or its parts immediately after the fly shall leave it in the movement of the bolt, all in combination, substantially as specified.

9. In a magazine bolt-gun, a magazine which feeds the cartridge rearwardly into the receiver, a guideway upward in the receiver to embrace the flange of the cartridge and direct it upward against the face of the bolt, a hook on the bolt extending into the passage-way of the flange of the cartridge to stop the rising cartridge when the bolt is in its rearmost position, and a carrier operating to raise the cartridge, all combined and relatively arranged substantially as described.

10. In a magazine-gun, a magazine which feeds the cartridges rearward into the frame, and a carrier, in combination with yielding extractors on the sides of the bolt, and means to hold them rigidly at the last portion of the rearward movement of the bolt, substantially as described, to stop the rising cartridges against the face of the bolt.

11. In a magazine fire-arm, spring side extractors carried by the bolt, provided with stops to hold them rigid at their rearmost point of movement at a less distance apart than the width of the cartridge-flange, all arranged in combination, to stop the rising of the cartridge when thrown up by the carrier, substantially as described.

12. In combination, in a magazine fire-arm, a reciprocating bolt carrying side extractors arranged to stop the feeding cartridge, substantially as described, said extractors being scored out at the top to release the extracted shell, and the opening in the frame for the ejection of the shell, having the passage b^2 for the flange of the shell.

13. The spring-ejector c , hung in the top of the carrier in line of movement of the rearward-feeding cartridge, so the feeding cartridge retires it from its operating position, but arranged to spring forward to eject the shell when the carrier rises empty, substantially as set forth.

14. A carrier pivoted in the frame and a lever having a separate fulcrum, substantially as described, said lever having an arm projecting forward practically parallel with the carrier when the same is lowered, and a stud to engage said lever to raise its front end above the floor of the carrier as the carrier rises, the combination being and operating substantially as described.

15. In a gun, a hammer, a sear-piece, and a pawl connected to the trigger to engage said sear-piece, substantially as described, to hold the sear-piece rigid with the trigger, and a stop to trip said pawl and release the sear-piece by the pulling of the trigger, the combination being and operating substantially as described.

16. In combination, in a gun, a trigger, a sear-piece, and a spring-catch to lock the sear-piece to the trigger, and means for engaging the same and thereby releasing the sear-piece from the trigger in the act of discharging the gun, substantially as specified.

17. In combination, in a gun, a trigger, a sear-piece, and a spring-catch to lock the sear-

piece to the trigger, and means to engage and release the sear-piece from the trigger in the act of discharging the gun, and a spring to "set" the sear-piece automatically, substantially as set forth.

5 18. In a breech-loading gun, a bolt and a brace to lock said bolt against a bearing in the frame, a firing-pin arranged with longitudinal movement in the bolt, in combination
10 with a wedge guided vertically in the bolt in the path of movement of the brace, so that the brace engages the wedge in unlocking the breech to force it against the firing-pin to retire said firing-pin in the bolt, substantially
15 as described.

19. In a breech-loading fire-arm, an operating-handle arranged to slide on the lower part of the small of the stock, and provided with upward-projecting ears extending alongside
20 of said stop, a screw or pin to unite said ears, and a slot in the stock to allow for the play of said pin, all in combination to operate the breech, substantially as and for the purpose specified.

25 20. In a breech-loading fire arm, an operat-

ing-handle arranged to slide on the lower part of the small of the stock, and provided with upward-projecting ears to embrace the same, a screw or pin to unite said ears, and an operating-rod attached thereto and connecting
30 with the breech mechanism, substantially as described.

21. In a gun, a sear-piece and a trigger hung in the guard-strap or frame, the sear-piece pivoted to move independently of the
35 trigger and having a spring to move it, so that the trigger engages the sear-piece to turn it to pull off the gun and then releases said sear-piece from the trigger by the continued pulling
40 or backward movement of the trigger, in combination with a hammer which is cocked by means independent of the sear and trigger, substantially as described.

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

ANDREW BURGESS.

Witnesses:

J. J. VAN KLEECK,
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