(No Model.) 2 Sheets—Sheet 1.

A. BURGESS.

GAS OPERATED FIREARM.

No. 589,120. Patented Aug. 31, 1897.

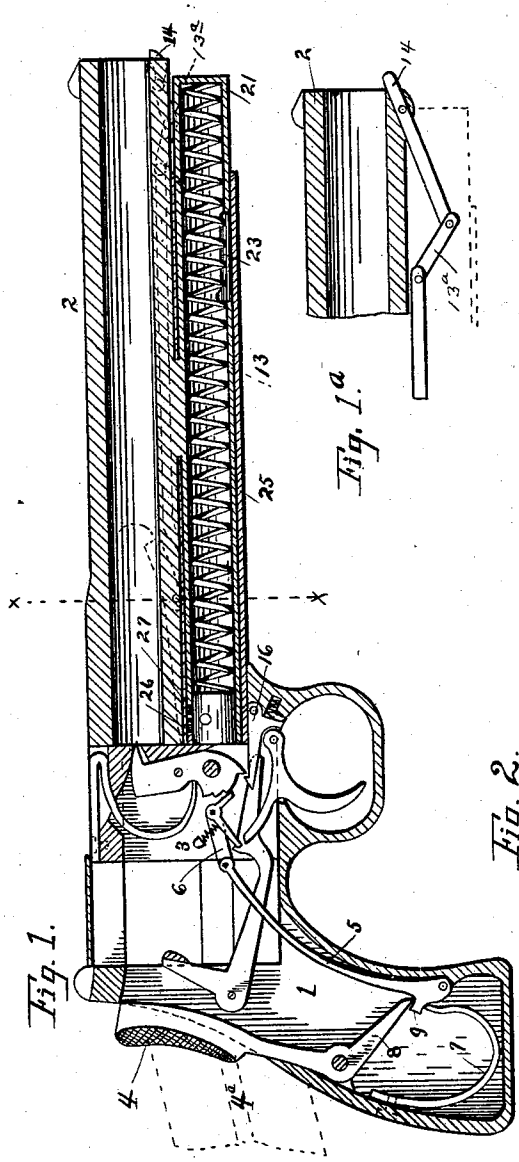


Fig. 1.

Fig. 1a.

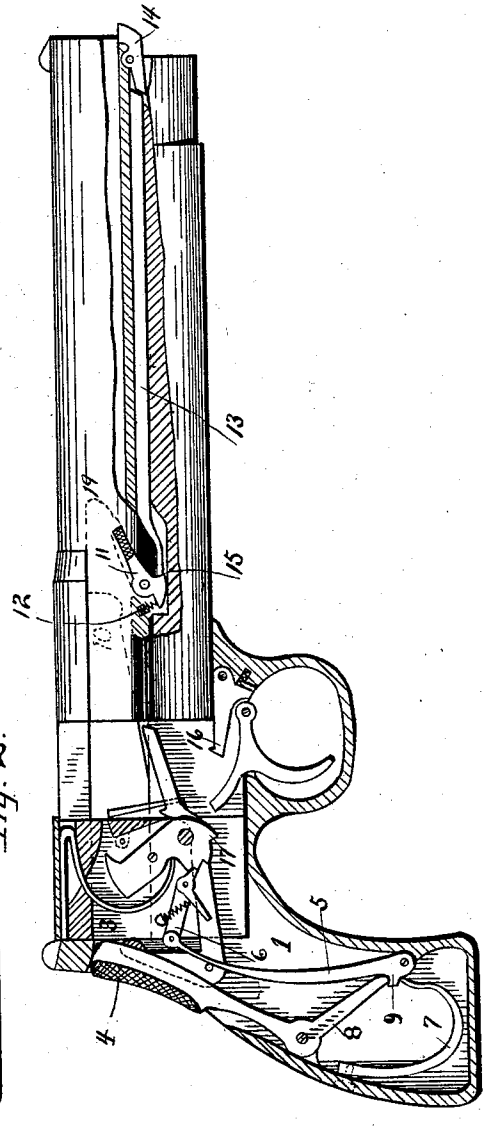


Fig. 2.

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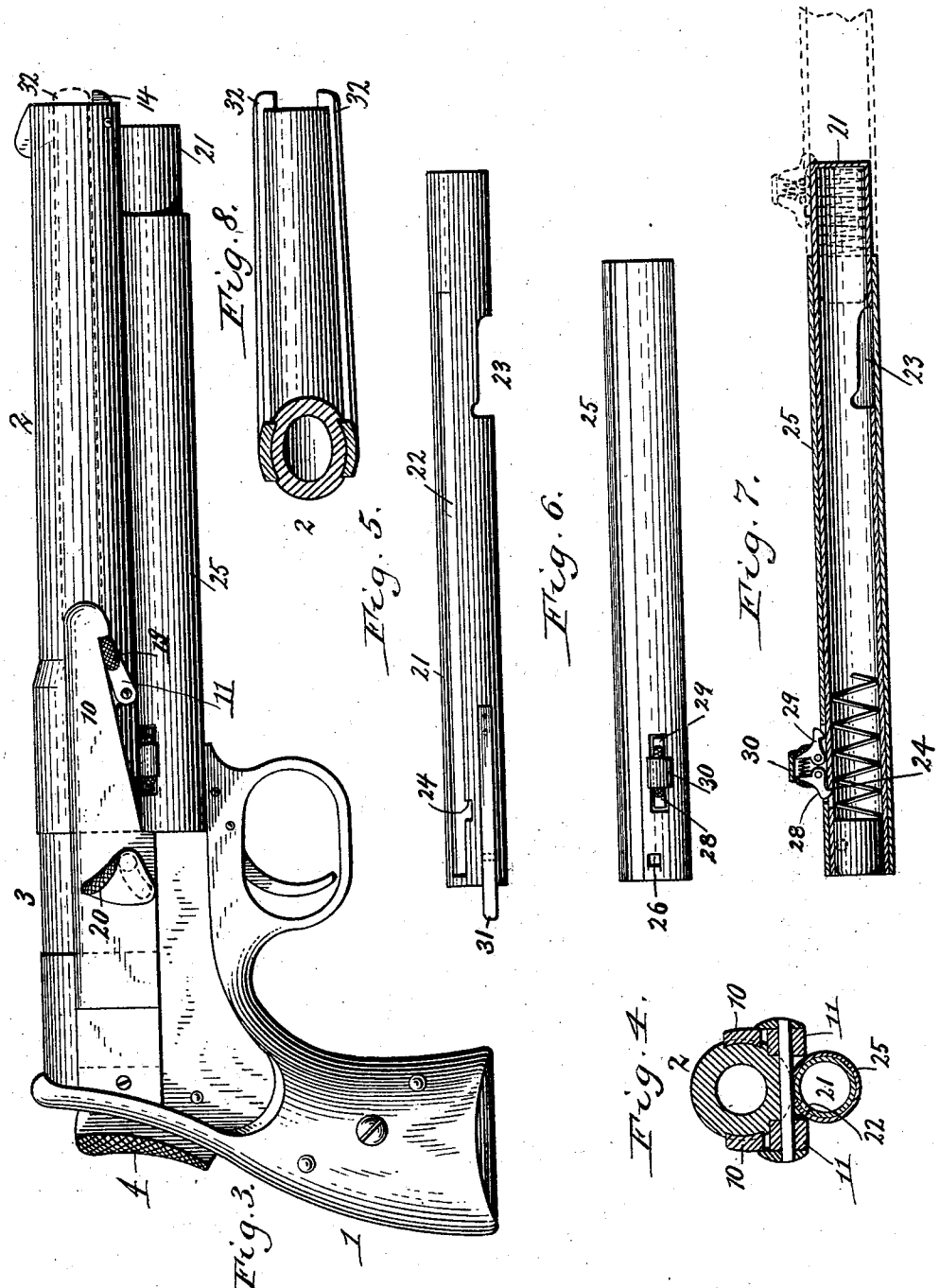
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

ANDREW BURGESS, OF BUFFALO, NEW YORK.

GAS-OPERATED FIREARM.

SPECIFICATION forming part of Letters Patent No. 589,120, dated August 31, 1897.

Application filed December 24, 1892. Serial No. 456,218. (No model.)

To all whom it may concern:

Be it known that I, ANDREW BURGESS, a citizen of the United States, and a resident of Buffalo, county of Erie, and State of New York, have invented new and useful Improvements in Magazine and Automatic Firearms, of which the following is a specification.

My invention relates to magazine and automatic firearms applicable to small-arms and cannon; and it consists of a system of unlocking the breech-block by the pressure of the charge in firing and opening the breech by the recoil of the arm, mechanism to close the breech, also to load the magazine, together with other arrangements and combinations of parts having the objects of rapid firing and simplicity of construction.

Figure 1 is a vertical longitudinal section of a pistol, showing this invention and having the breech closed. Fig. 1ª is a broken sectional detail of the muzzle of a gun, showing a modified toggle-lever, being part of the unlocking device; Fig. 2, a similar view with the breech open and some parts cut away to show the locking mechanism. Fig. 3 is a longitudinal side elevation of a pistol having my improvements. Fig. 4 is a cross-section on line *x x* of Fig. 1. Fig. 5 is a side view of the inner or fixed magazine-tube. Fig. 6 shows the outer sliding case of the magazine. Fig. 7 is a nearly vertical longitudinal section of the magazine and tube, parts being omitted and parts broken away. The loading-opening 23 in said tube is shown in a different position from that shown in Fig. 5, as the loading-opening may be in any convenient position in the tube. Fig. 8 shows a modification of the device to lock the breech-block in plan.

Similar figures of reference indicate corresponding parts.

1 is the frame part holding the breech mechanism, 2 the barrel, and 3 the breech-block. The breech-block, as shown, is housed in the frame in longitudinal guides to confine it to a reciprocating movement. A handle or operating-piece 4 projects from the rear of the arm and is connected to the breech-block by the lever 5 and link 6. The lower arm 8 of the operating-piece 4 engages the lever 5 in the notch 9 above its pivot. The lever 5 is pivoted in the frame and furnished with a spring 7, which turns the lever forward to thereby press the breech-block to a closed position by the link 6, as shown in Fig. 1.

The breech-block has an extension 10 extending forward on one or both sides of the barrel. A locking-dog 11 is pivoted in the body of the gun and has a spring 12 to swing the forward part of said dog into a notch in the extension 10, as shown in Fig. 3, to thereby lock it and the breech-block forward. A release-rod 13 engages an abutment in the dog 11 below its pivot and extends forward along the barrel to connect with a lever 14. The lever 14 is pivoted in the barrel near its muzzle and has its forward end closed in a slot to the bore of the gun and also projecting a little forward of the barrel. I show a link 13ª in Fig. 1 to connect the lever to the rod 13 and in Fig. 2 an incline or bevel of the parts, the object being the same in both cases—that the upward movement to the rear of the lever shall force the rod 13 backward.

If the arm is held in the usual manner and fired, the breech-block and operating parts will change from their position in Fig. 1 to that of Fig. 2. The first shock of firing turns the lever 14 by pressure of the gas or projectile on the front end of lever 14 to throw or "blow" its front end outward from the bore of the gun. This turns in its rear end, whose incline engaging the inclined end of the rod 13 drives said rod back against the abutment 15, below the pivot of the locking-dog, which turns said dog out of its engagement with the breech-block to thereby unlock the breech.

The recoil of the gun usually takes place just after the projectile leaves the muzzle, and in being held to fire will be supported from the rear against the rear projection of the operating-piece 4. That piece has been held inoperative by the locking of the breech-block until, as just described, the breech becomes unlocked, and the recoil pressing the arm back is resisted by the projection of said piece 4, which by reason of the resistance of holding then moves relatively to the arm to the position shown in Fig. 2, and as it turns on its pivot its lower arm, which engages the lever 5, turns said lever back, which pulls back the breech-block by means of the link 6.

The backward movement of the lever 5 com-

presses its spring 7, and the reaction of said spring will then turn forward the lever 5, which by its link 6 moves forward the breech-block to close it, and the dog 11 snaps into its notch to lock the breech-block, when the arm will again operate as before if the trigger is held back or again pulled.

In Fig. 1 the hook 16, pivoted in the frame, is seen engaging a notch 17 of the hammer which is below the hammer-pivot. When the breech-block is moved back, as before described, the hook holds in the notch of the hammer until the hammer reaches its cocked position, when its notch rises so far as to allow its release. When the breech closes, the hook springs down to allow the hammer-notch to pass forward of it.

The breech-block may be operated without firing by pressing the dog 11 out of locking position by its thumb-piece 19, Fig. 3, and then pressing hard on the rear of the operating-piece 4.

A cocking thumb-piece 20 is also fixed to the hammer and projects through the side of the breech-block, which is slotted to allow the thumb-piece to move down and rearward, as shown in dotted lines in Fig. 3, and then a further pull rearward on said thumb-piece will assist to pull back the breech-block and open the breech.

The mechanism to unlock, move back, and close the breech is applicable to shoulder-guns by applying a rod, as 4^a, (shown in broken lines in Fig. 1,) to connect with the well-known movable butt-plate; also to cannon by connection to any resisting part of the carriage or mounting.

The magazine has an inner tube 21, which contains the spring and follower and is secured at its upper side to the bottom of the barrel. Said tube has a long slot 22 near its top, as shown in Fig. 5, a loading-aperture 23, and a shoulder 24 in the slot. An outer tube or cover 25, slotted its whole length at its top, slides over the tube 21, as shown in Fig. 7. Said outer tube has an inward projection 26 to engage the outward projection 27 of the follower, which travels in the slot 22 of the inner tube. The outer tube has also a lump 30 on its rear part in which are hung the spring-catches 28 and 29. The rear catch 28 engages the shoulder 24 of the inner tube 21 when the outer tube is in its rearward position to firmly hold it there, and the forward catch 29 is arranged to engage the forward end of the inner tube, as shown in dotted lines, Fig. 7, when the outer tube is shoved to its extreme forward position. When this magazine is in its fixed position, as shown in Figs. 1 and 3, it feeds the cartridges, as usual, and a stop 31 is arranged in the magazine to prevent the containing cartridges from feeding back except when released by the breech-block, which presses out said stop in closing in a well-known manner. To load this magazine, the projecting lump 30 on the outer tube 25 is grasped to turn and release the catch 28 from its engagement with the shoulder 24 of the inner tube, when the outer tube, being free to slide on the inner one, is moved forward until its inner projection 26, which engages the projection 27 of the follower to move it forward, reaches the end of the groove 22 of the inner tube, which stops it, and the catch 29 will then be in position to engage the front end of the tube 21 and hold said outer tube in its forward projecting position, as shown in dotted lines in Fig. 7, when its forward catch 29 will spring down and engage over the end of the fixed tube 21 and hold the outer tube so far out as to uncover the loading-hole 23, into which the cartridges may be dropped, the follower being held forward of said hole, as shown in dotted lines, Fig. 7, and by again grasping the lump 30 the catch 29 is released and the covering-tube moved back to its rearward position, where it will be held by the catch 28, as before, and its front end will cover the loading-aperture 23.

In the modification shown in Fig. 8 and in dotted lines, Fig. 3, the locking device consists of the extensions of the bar 10, which are carried forward to spring in and lock over the shoulders at the muzzle of the arm. It is obvious that the projecting hooks 32 32 will be blown outward by the pressure of the explosion in the same manner as the lever 14 and the breech-block then carried back by the recoil, as before described. This device may be used alone or in connection with the other locking arrangement and will be of advantage in short guns, as it effects the object of unlocking the breech-block by the direct pressure of the discharge against the locking mechanism and requires no connections for conducting said pressure rearward.

I do not limit my claims in locking and unlocking the breech-block to a reciprocating breech-block, as it may be applied to others, and it may be applied without any change to those systems of arms in which the barrels move forward to open and backward to close the breech, and the invention, as indicated by the claims, is in many respects of a generic rather than a specific character.

I claim—

1. In a gun, the frame, barrel, and reciprocating breech-block, a breech-locking mechanism independent of the breech-actuating lever and means for unlocking the same, a breech-moving lever hung in the frame and connected to the breech-block, a spring connected to said lever and tending to close the breech-block, and a recoil-lever operating on said breech-lever to open the breech-block against the resistance of said spring, all combined substantially as described.

2. In a breech-loading gun, the barrel, frame, and reciprocating breech-block, and means for locking and unlocking said breech-block, a lever connected to the breech-block by its long arm and pivoted in the frame, and

a second lever having a long arm acting as a recoil-piece, and a short arm acting on the short arm of the first-mentioned lever to accelerate the movement of the breech-block when opened by recoil action, all combined substantially as described.

3. In a gun, the barrel, frame, and movable breech-block, and mechanism connected to said breech-block by which the breech is opened by the recoil of some part of the gun, a breech-locking catch, and mechanism extending to the bore of the gun forward of the cartridge-seat, by which said catch is unlocked by the gas-pressure in the bore of the gun, and opened by the recoil of the gun, all combined substantially as described.

4. In a gun, the barrel, frame, and longitudinally-reciprocating breech-block, mechanism connected to the breech-block and operated by the recoil of the gun to open the breech, a locking-catch for the breech-block, and connections from said catch extending to the front of the gun-muzzle, so that the catch is unlocked by gas-pressure and the breech opened by the recoil, all combined substantially as described.

5. The barrel, frame, and breech-block, the breech-locking dog and means extending to the front of the muzzle of the gun whereby the dog may be unlocked by the firing of the gun, and a projection from the dog whereby the same may be manipulated by hand, all combined substantially as described.

6. The inner magazine-tube having a shouldered slot and an opening therein, and the outer magazine-tube having a double catch extending through an opening in the side thereof, in position to engage the shoulder of the slot in the inner tube or the outer end of said tube when adjusted, all combined substantially as described.

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

ANDREW BURGESS.

Witnesses:
E. L. MORTIMER,
O. L. SNYDER.