(No Model.) 2 Sheets—Sheet 1.

A. BURGESS.

RECOIL OPERATED FIREARM.

No. 520,752. Patented May 29, 1894.

Fig. 1.

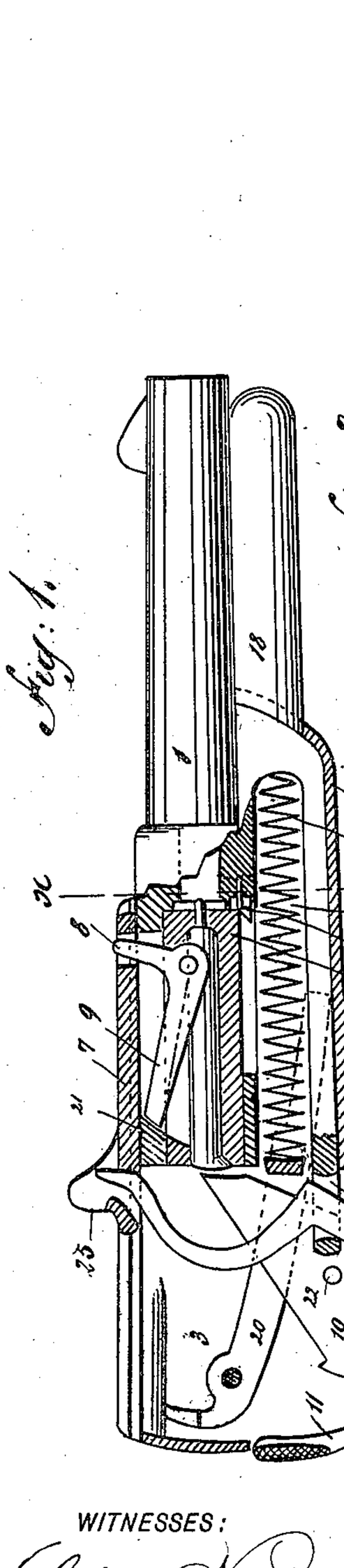

Fig. 3.

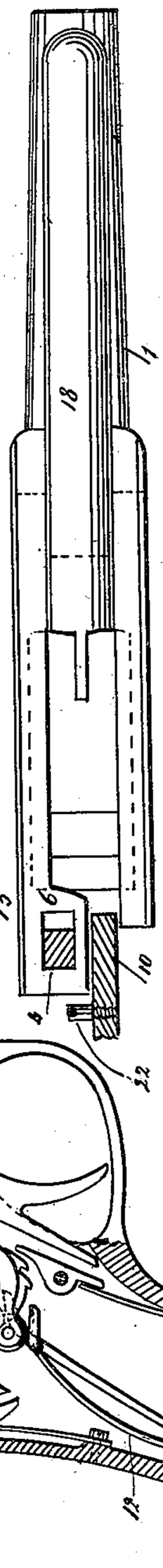

Fig. 2.

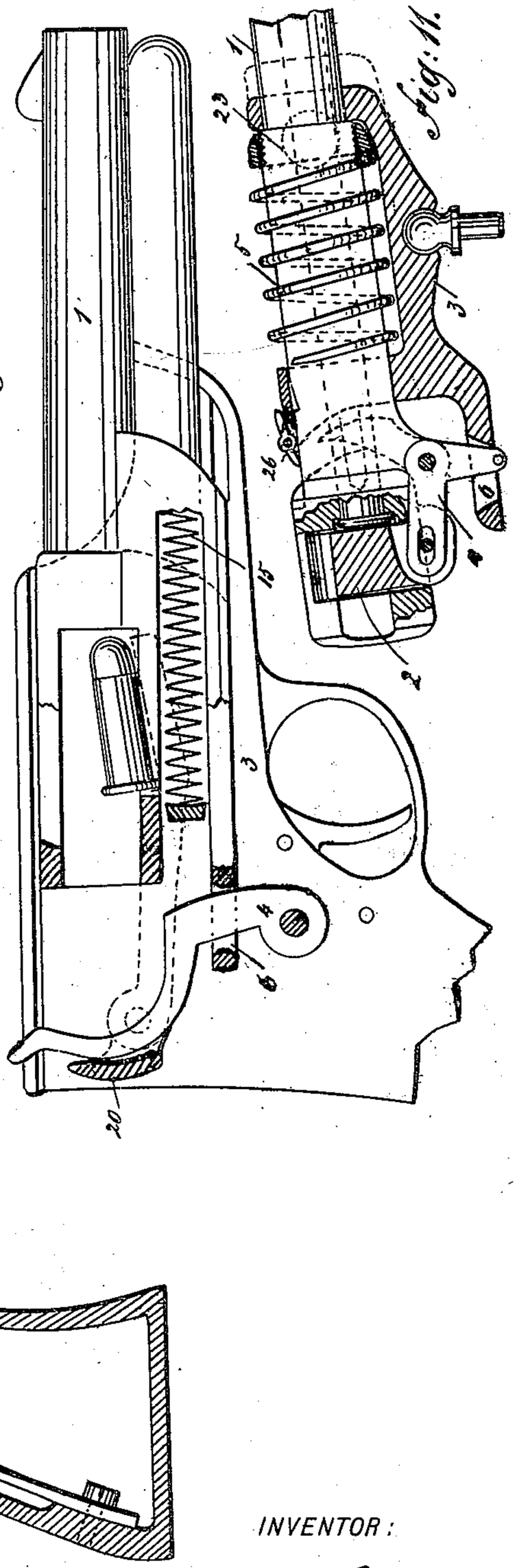

Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

A. BURGESS.

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Fig: 9.

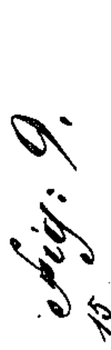
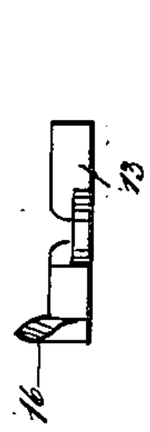


Fig: 10.



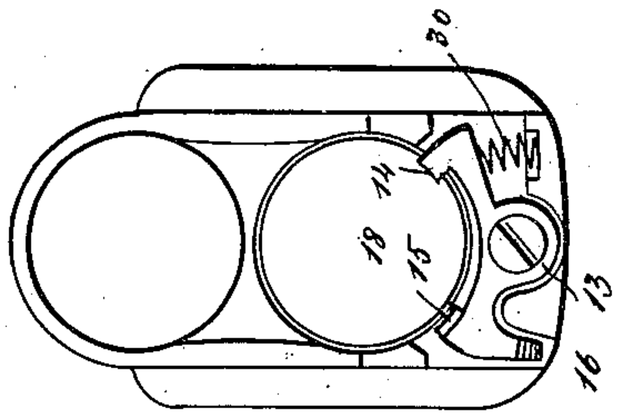


Fig: 7.

Fig: 4.

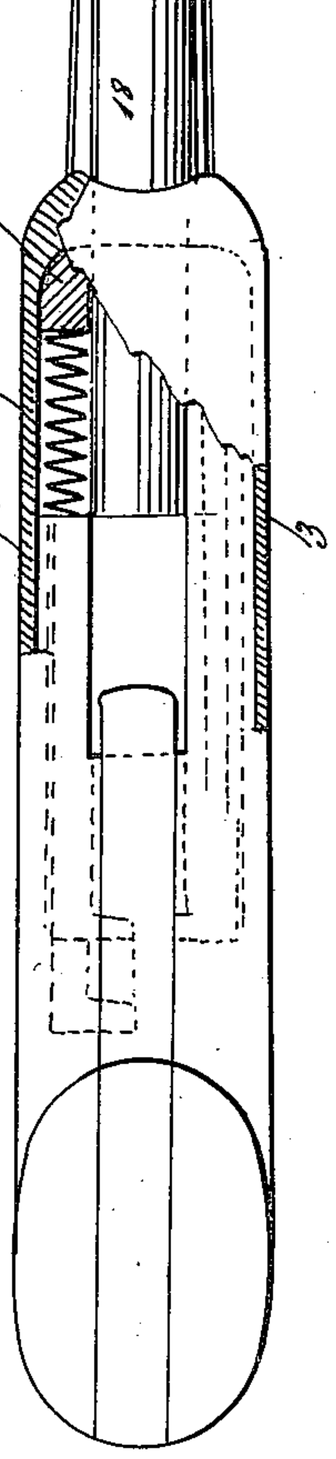


Fig: 5.

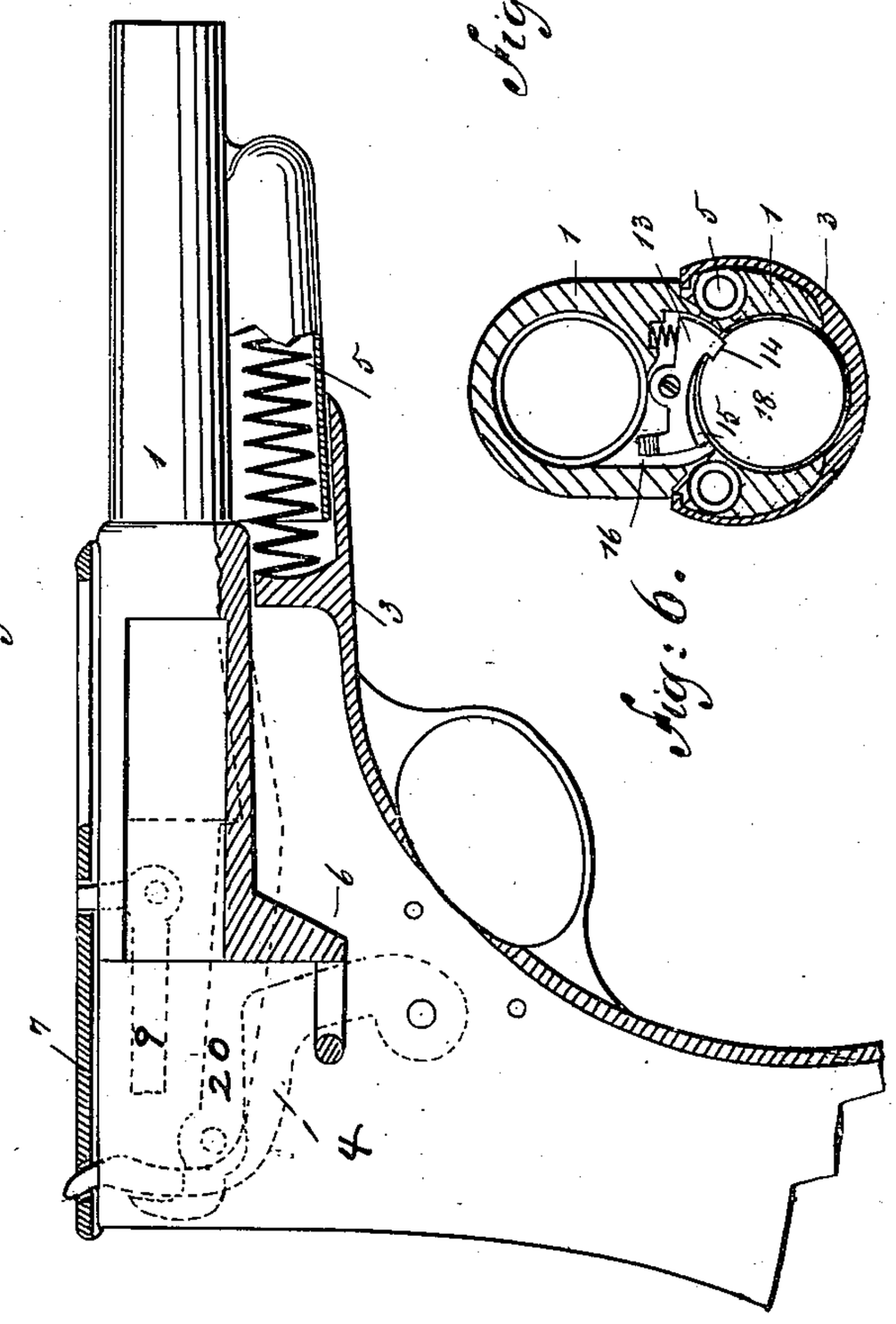
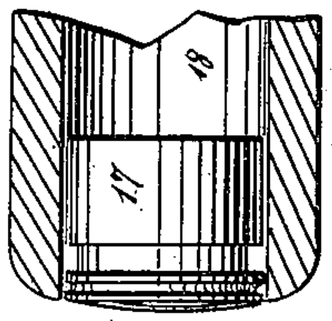


Fig: 6.

Fig: 8.



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UNITED STATES PATENT OFFICE.

ANDREW BURGESS, OF OWEGO, NEW YORK, ASSIGNOR TO THE BURGESS GUN COMPANY.

RECOIL-OPERATED FIREARM.

SPECIFICATION forming part of Letters Patent No. 520,752, dated May 29, 1894.

Application filed April 24, 1890. Serial No. 349,211. (No model.)

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 Automatic and Magazine Guns; 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 the figures of reference marked thereon, which form a part of this specification.

My invention relates to automatic and magazine fire arms of all sizes and modes of mounting, and has for its object, ease and facility of operation, and consists of recoil breech working devices; magazine feed, and other arrangements and combinations of parts hereinafter described.

Figure 1 is a longitudinal sectional elevation of an arm having these improvements, with breech closed. Fig. 2 shows details of Fig. 1, with barrel and lever recoiled. Fig. 3 is a bottom plan view of barrel. Fig. 4 is another bottom view showing position of non-recoil mounting on the barrel. Fig. 5 is a modification of Figs. 1 and 2 having a single central counter recoil spring. Fig. 6 is a cross section (enlarged) on line *x*—*x* of Fig. 1; Fig. 7, an enlarged vertical cross view of the rear of the barrel and magazine. Fig. 8 shows the magazine follower. Figs. 9 and 10 are detached views of the magazine feeder. Fig. 11 is a modification showing a mode of using the recoil and lever, to operate a vertical breech piece, as applied to ordnance (reduced view).

Similar figures of reference indicating corresponding parts, 1 is the barrel, 2 the breech piece, 3 the non-recoil frame or mounting, 4 the operating lever, and 5 the counter-recoil springs.

The frame or mounting 3, supports the barrel which has a limited longitudinal movement (guided by grooves) in said frame. An extension 6 of the barrel has a mortise or projection to engage the lever 4, which is pivoted in the frame and has a long arm connected to the slide 7. The slide 7 is connected to an upward extending arm 8 of the breech locking brace 9, and the breech piece reciprocates in the rear shoe part of the barrel. The hammer 10 is hung on the same pivot, at the side of the lever 4 and besides the ordinary trigger and sear, has a spring dog 11 to engage notches in its rear. A counter-recoil spring 5 is arranged on either side of the arm, its rear resting against a fixed part of the frame and its forward end bearing forward the barrel and recoil portion, and an additional spring 12 may bear the lever 4 forward. At the mouth of the magazine 18 is hung the vibrating spring feeder 13, which has points 14 and 15 to engage the cartridges and follower 17 in the magazine, and an incline 16 which the closing bolt engages to vibrate it. To operate this arm first open the breech by bearing backward on the split thumb piece 25. This will move back the slide 7 which first unlocks the breech bolt by turning down the rear end of the locking brace 9, from abutting against its locking shoulder 21, of the barrel portion of the gun. Continuing the motion rearward the breech and lever obtain the position shown in Fig. 5, the hammer cocked (from impact of the bar 6 against the pin 22) and further secured by the safety dog 11. The magazine may then be charged through top or bottom of the frame, and another cartridge inserted into the barrel, when let go the thumb piece, and the breech will close by force of springs 5 and 12 which bear the barrel and lever 4, forward, and the gun may then be fired by pressing against the safety dog 11 and pulling trigger. When the recoil occurs the barrel is driven violently back to position shown in Figs. 2 and 5, its extension 6 turning the lever 4 on its fulcrum or pivot, and by reason of its engaging near the pivot of said lever carries its top back more rapidly and farther than the barrel, and the top of the lever engaging in the mortise of the slide 7 moves it back to open the breech as before described. It will thus be seen that while the breech piece partakes of the recoil movement of the barrel, it has also an independent movement of its own, and the breech locking mechanism also has an independent movement, all being actuated by the recoil of the barrel, or the bar-

rel and connections, relatively to the frame, stock, or other fixed or non recoil portion of the gun. The carrier is raised by impact of the lever 4 as in Fig. 2 to present a cartridge in front of the bolt, which as the barrel moves forward under the impulse of the spring, closes the breech as described, and driving the cartridge before it is ready to fire again.

In the modification, Fig. 11, the lever 4 is shown in bell crank form to operate a vertically moving breech piece by the same rearward recoil movement of the barrel and resistance of the spring 5 and mounting 3 and a spring catch 26 then holds the barrel in its rear position to allow the gun to be loaded by hand; when releasing the catch the barrel will be forced forward (by its heavy spring 5) and the forward abutment of the frame extension 6 arrests the lever to vibrate it and thereby close the breech.

I show in dotted lines in Fig. 11 a reversal, in which the barrel may be hung on the trunnions 23, and the forward ring of the heavy piece 3 moved forward, and the rear arm of the operating lever 4 turned upward. In this construction the inertia of piece 3 prevents it from taking the quick backward impulse of the barrel which compresses the spring 5, substantially as before, and operates the lever to move the breech through its up-turned arm when reacted upon by the spring 5.

In horizontal magazines that feed the cartridges backward as here shown a shoulder has usually contracted the delivery end, so that the follower which is then larger than the cartridge head may not run out, and the magazine has to be made larger than otherwise required. By the construction here shown the magazine is made a true cylinder of only the size required for holding the cartridges and the oscillating feeder has the rear projection 14, to hold the head of the cartridge or the follower in, by being pressed behind it by the spring 30. When the projection 14 is retired by the movement of the breech or any of its connections (the bolt is here shown striking the incline 16 of the feeder to vibrate it) the rear cartridge is free to pass rearward, but the next one is engaged and held in by the forward projection 15 which by above movement of the feeder has been turned inward, and when the feeder is released to spring back to the position shown in Fig. 7 the cartridge is released also from the point 15, and springs rearward to be caught and held by the point 14 so that the cartridges can feed but one at a time. The follower is first stopped in the same manner by 14 but when released by that, as aforesaid the point 15 enters its annular groove to still hold it in the magazine, and the feeder thus holds the follower in by one of its points, however vibrated.

I claim—

1. In a fire-arm, the support or non-recoil portion, the barrel and connections constituting the recoil portion, the breech piece and a lever connected to the breech piece actuated by the recoil portion to open the breech by the direct recoil movement, all combined substantially as described.

2. In a firearm, the support or non recoil portion, the barrel and connections constituting the recoil portion, the lever hung to the non recoil portion and in the path of recoil of the recoil portion, the breech block, and its locking piece, and connections from said lever to said locking piece, whereby the lever is moved by the movement of the recoil portion on firing, and said lever movement opens the breech, all in combination substantially as described.

3. In a firearm, the support or non-recoil portion the barrel and connections constituting the recoil portion, the breech block and its locking mechanism, and a lever connected to the gun and actuated by the relative movement of the parts during recoil, said lever connected to the locking mechanism to open the same by the recoil movement, the parts being combined substantially as described.

4. In a gun the supporting non-recoil portion, the barrel and breech piece connected substantially as described to move with differential movement under the force of recoil, the spring acting on the barrel against the force of recoil and tending to restore the same to normal position, and a catch engaging the recoil parts to retain said spring compressed and the barrel open, all combined substantially as described.

5. In a firearm, the support (carriage or stock) the barrel having a recoil movement on said stock, a lever pivoted to the support and engaged by a connection from the barrel between its pivot and operating arm as the barrel recoils, the breech block and its locking piece, and a link connecting the long arm of the lever to the breech locking piece, all combined and operating substantially as described.

6. In a firearm, the recoil and non-recoil portions, a lever connected to one of these portions and actuated by the recoil movement, the breech piece and its locking mechanism actuated by said lever to open the breech as the barrel recoils, and a cartridge carrier in position to be actuated by the recoil portion before completion of the recoil, all combined substantially as described.

7. In a firearm, the recoil and non-recoil portions, the breech piece, and a lever connected to the breech piece and acting thereon to open the breech during the recoil, and a spring acting on the recoil portions to return the same to normal position and thus close the breech, all combined substantially as described.

8. In a fire arm, a tubular magazine having a spring follower therein, and a vibrating cartridge feeder near the mouth of said magazine, said feeder having stops on opposite sides of the center of the magazine and one in advance of the other, whereby the movement of the feeder may permit the passage

of a cartridge by alternately engaging the stops with the flange, but will act as a stop to the follower, all in combination.

9. In a magazine gun, the tubular magazine having its mouth the full diameter of the magazine proper, a cylindrical follower in the magazine, a vibrating feeder near the mouth of the magazine, having a stop at each side of the magazine and one in advance of the other and means connected to the breech mechanism for vibrating said feeder, all combined substantially as described.

10. In a magazine gun, the tubular magazine adjacent to the barrel opening at its rear end into the receiver, and having its mouth of the full diameter of the magazine proper, a cylindrical follower in the magazine, a vibrating feeder in the mouth of the magazine having stops one in advance of the other, and means connected to the breech mechanism for actuating said feeder, all in combination substantially as described.

11. In a firearm, the recoil and non recoil portions, and means for restoring the recoil portion to normal position, the breech piece, and a lever connected to said breech piece to open and close the same, and abutments connected to the recoil portion and actuating said lever in both directions, whereby the breech is opened by the recoil and closed by a contrary movement of the recoil portions, all in combination substantially as described.

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

ANDREW BURGESS.

Witnesses:
CHAS. NIDA,
EDWD. M. CLARK.