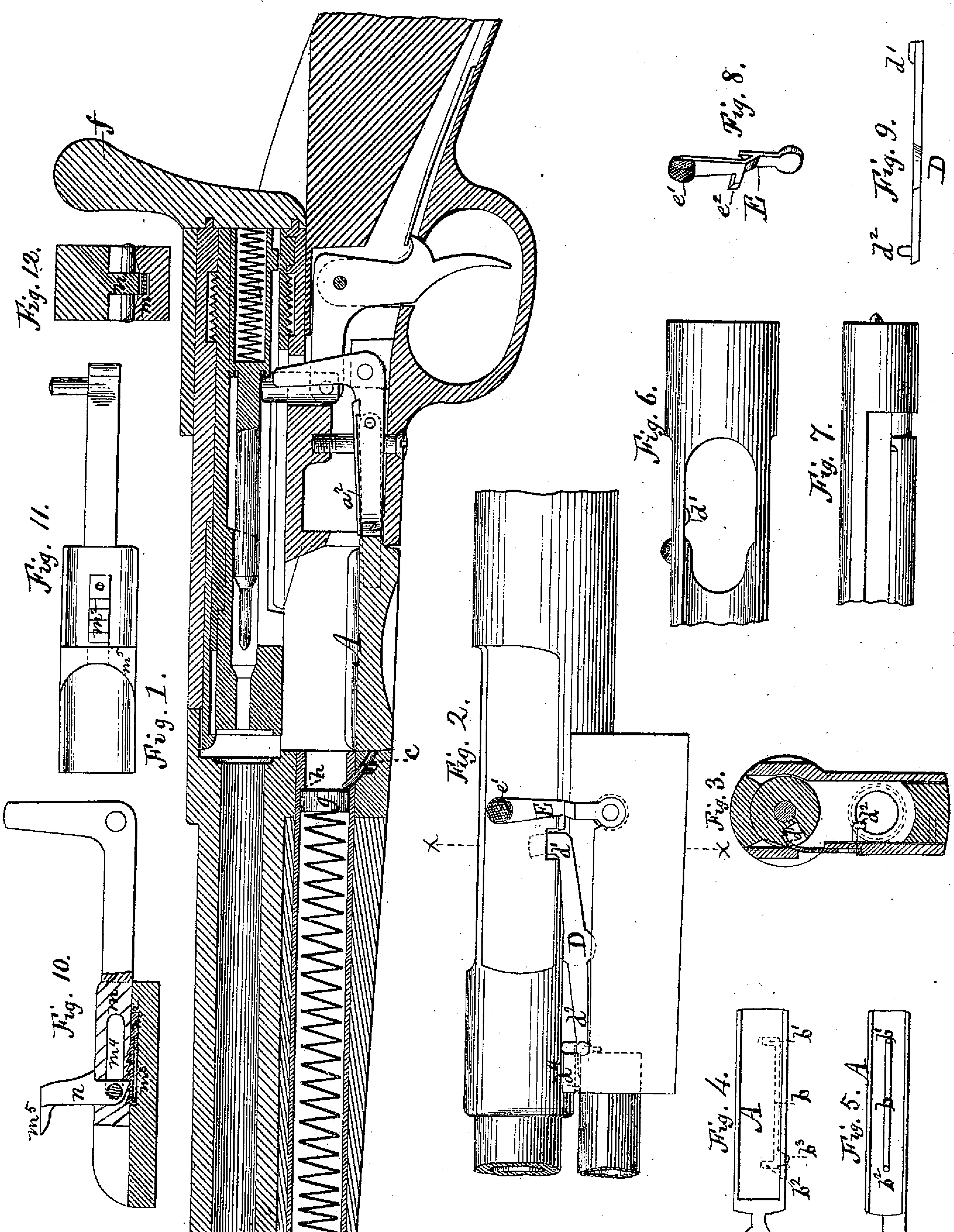
J. W. KEENE.

Magazine Fire-Arms.

No. 148,614. Patented March 17, 1874.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN W. KEENE, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. **148,614**, dated March 17, 1874; application filed March 4, 1874.

To all whom it may concern:

Be it known that I, JOHN W. KEENE, of Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Breech-Loading and Magazine Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, sufficient to enable those skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing and to the letters and figures marked thereon.

My invention relates to certain improvements on those for which I filed an application for patent on the 6th day of December, 1873. My present invention consists in, first, a carrier attached to a bar which is pivoted or hinged to the elbow-lever, and provided with a spring, thus forming a broken-jointed carrier, which may be raised by pressure upon it without raising the lever, so that the magazine may be loaded when the gun is at half-cock or when the breech is closed by the bolt and securely locked; second, a spring in the side of the carrier for holding it in position by friction against the side of the carrier-well; third, a pin in the front wall of the carrier-well, for preventing the escape of a cartridge from the magazine-tube so long as one remains on the carrier; fourth, a lever for cutting off the cartridges and allowing them to escape one at a time, thus holding all the cartridges except the first one securely in the magazine until the first cartridge has been discharged, and thereby preventing all possibility of their accidental explosion; fifth, a lever for locking and reserving the magazine when the gun is to be used as a single-loader; sixth, the combination of a groove and projection on the breech-bolt with the lever which cuts off the cartridges, for the purpose of operating said lever.

In the accompanying drawing, Figure 1 is a longitudinal vertical section of a fire-arm embodying my improvements. Fig. 2 is a side view of the receiver and carrier-well. Fig. 3 is a transverse vertical section taken in the line *x x* of Fig. 2, looking toward the muzzle. Fig. 4 is a top view of the carrier. Fig. 5 is a side view of the same. Fig. 6 is a top view of the receiver. Fig. 7 is a view of the front portion of the bolt. Fig. 8 is a perspective view of the lever for reserving the magazine. Fig. 9 is an edge view of the cut-off lever.

The carrier A is attached to an elbow-lever operated in a similar manner to that described in my application aforesaid. Instead of being rigidly attached to or made in one piece with the lever, the carrier is attached to a separate bar, *a*, the rear end of which is bent at an angle and formed into a pivot, which is inserted in a hole in the lever, so as to allow a vertical motion to the carrier independent of the lever. The bar *a* rests upon a shoulder on the front end of the lever, so that when at its lowest point it forms a continuation of the lever. The bar *a* may be pivoted or hinged to the elbow-lever at any point or in any manner that will accomplish the desired result, but the manner described is one of the most convenient. A flat spring, a^2, has its rear end attached to the lever and its front end resting upon the bar *a*, so as to have a tendency to keep it constantly pressed down in the same position as if the carrier and lever were made in one piece.

By this construction and arrangement of parts I form a broken-jointed carrier, which may be pressed upward in the carrier-well without affecting the position of the lever, so that the magazine may be loaded when the gun is at half-cock or while the breech remains closed without the necessity for drawing back the bolt, as in my application aforesaid.

Instead of the spring under the carrier-lever for holding up the carrier, I employ a spring, *b*, consisting of a piece of elastic metal bent in such form that one end, b^1, enters a hole in the carrier, so as to hold it in place, while the other end b^2 may either pass entirely through the carrier, so as to protrude and bear against the wall of the carrier-well, or it may simply enter the hole far enough to hold it in place, and have a projection, b^3, formed at the point where it is bent, as shown in Figs. 4 and 5, which form may be preferred in some cases. The projection b^3 bears against the side wall of the carrier-well, and thus, by friction, holds the carrier in any position to which it is raised by the action of the bolt upon the lever.

For the purpose of preventing the escape of a cartridge from the magazine-tube when

there is a cartridge already upon the carrier, I employ a pin, *c*, working loosely in a recess in the front wall of the carrier-well, under the rear end of the magazine-tube, so as to protrude very slightly. As the carrier is raised and lowered, its front end bears against the rear end of the pin *c*, and presses its front or inner end upward into the magazine-tube, as shown in Fig. 1, the pin being slightly longer than the orifice in which it works, so that when the carrier is in contact with its rear end the front end protrudes into the magazine-tube, as shown, and when the carrier is not in contact with it the rear end protrudes into the carrier-well. When the magazine is loaded, the rearmost cartridge is held by the cut-off hook, hereinafter described; and when the carrier is down, the pin *c* extends into the magazine-tube a distance about equal to the width of the flange on the head of the cartridge. When the first cartridge is released by the cut-off hook and allowed to escape from the tube, the pin *c* arrests the second cartridge before it reaches the cut-off hook, and holds it until the first cartridge is raised by the carrier to the chamber of the barrel. As soon as the carrier rises so as to release the rear end of the pin *c*, said pin, by its own weight and the pressure of the cartridge, falls, so as to release the cartridge and allow it to move along until arrested by the cut-off hook or projection d^2.

For releasing the cartridges one at a time, and also for cutting them off so as to lock and reserve the magazine, I employ the devices shown in Figs. 2, 3, 8, and 9. An elastic lever, D, works in a recess formed on the outside of the receiver and carrier-well, being sprung into its place and held there without pins or screws. The rear end d^1 passes through a hole and protrudes slightly into the receiver, as shown in Figs. 2, 3, and 6, and the front end d^2 passes under a flat spring, d^4, and into a recess, and protrudes slightly into the magazine-tube, as shown in Figs. 2 and 3. When the bolt is moved forward or backward, the projecting end d^1 runs in a groove formed on the side of the bolt; but when the handle *f* is turned down to lock the piece, a projection on the bolt strikes the end d^1, so as to hold down the front end d^2 and prevent a cartridge from escaping into the carrier-well as long as the bolt is in such locked or closed position. When the handle *f* is turned up again, preparatory to moving back the bolt, the projection on the bolt depresses the rear end d^1, throwing the front end d^2 up into the recess shown in Fig. 2, so as to allow a cartridge to escape from the magazine to the carrier; immediately after which the end d^2 resumes the position shown in Fig. 2, (being pressed down by the spring d^4,) and prevents the escape of another cartridge until the movement of the bolt is repeated.

In the patents granted to William G. Ward and to Bethel Burton, referred to in my application aforesaid, and also in the gun which forms the subject-matter of said application, and in all other magazine-guns of which I have any knowledge, a second cartridge is admitted from the magazine to the carrier while the first cartridge is in the chamber of the barrel, and before it is discharged. In the present invention, by means of the devices above described, a second cartridge is not allowed to escape from the magazine-tube to the carrier until after the discharge of the first one in the chamber of the barrel. I thus avoid all danger of accidental explosion, either from defects in the head of the cartridge in the chamber, or from defects in any portion of any of the cartridges in the magazine; for if the cartridge in the chamber should have a defective head, so as to permit the escape backward of any gas when discharged, such gas could not come in contact with the cartridges in the magazine, but would continue toward the rear end of the carrier-well, and there make its escape. A second cartridge cannot escape to the carrier until the bolt is turned up, and the carrier cannot rise to convey the said cartridge to the chamber until the bolt has been drawn back far enough to eject the shell or cartridge previously in the chamber, owing to the operation of the carrier-lever by the bolt, as before described.

When the magazine is loaded, or at any time when it is being used to feed the barrel, it may be reserved, and its contents securely locked therein, so that the gun may be used as a single-loader.

This result is accomplished by means of the following-described devices: A lever, E, is sprung into place in a recess immediately in rear of the lever D, so as to work in a nearly vertical position. This lever E has a roughened knob or projection, e^1, on its upper end, to facilitate its movement back and forth by the thumb. About midway of its length is an inclined stud or wedge, e^2, extending toward the rear end of the lever D.

When it is desired to reserve the magazine, the lever E is moved forward until the wedge e^2 passes under the rear end of the lever D, depressing the end d^2 to the position shown in Fig. 2, and withdrawing the end d^1 from the receiver, so that the motion of the bolt will not affect it, thus preventing the escape of cartridges from the magazine until the lever E is moved back again. The plunger *g* of the magazine-tube is made slightly larger than the flange of the cartridge-head, and is prevented from extending beyond the rear end of the magazine-tube by means of a shoulder, *h*, which renders the rear end of the tube slightly smaller than the remaining portion, but yet allows sufficient space for the cartridges to escape.

If desired, this shoulder may be formed in the front wall of the carrier-well without changing the construction of the magazine-tube; but the result is practically the same in both cases.

In Figs. 10, 11, and 12 of the drawing, I have shown a modification of the carrier, whereby it may be adjusted to cartridges of different lengths. In the upper side of the carrier, I

cut a mortise, m, in the bottom of which I place a bar, m^2, having ratchet-teeth on its upper side, and a spring, m^3, underneath. In the mortise m fits a bar, n, the pivot of which runs in a slot, m^4, crossing the mortise at right angles. The lower end of the bar n engages with one of the ratchet-teeth, so as to hold the bar in the upright position. (Shown in Fig. 10.) By this means the bar may be adjusted backward or forward to suit cartridges of different lengths. Above the carrier the bar n is wide enough to serve as the rear wall of the carrier-well. In the upper end of the bar is formed a flange, m^5, which prevents the head of the cartridge from rising too high, said flange being in place of the one described and shown in my application aforesaid as being in the bottom of the receiver and top of the carrier-well.

What I claim as new, and desire to secure by Letters Patent, is—

1. A carrier hinged or pivoted to the lever, so as to form a broken-jointed carrier, which may be raised independently of the lever, to allow the magazine to be loaded when the breech is closed by the bolt, substantially as shown and described.

2. The spring b in the carrier, constructed and operating substantially as shown and described, for the purpose specified.

3. The pin c in the front wall of the carrier-well, as shown and described, for the purpose specified.

4. The cut-off lever D, for cutting off the cartridges, substantially as shown and described.

5. The lever E, and its combination with the lever D, for reserving the magazine, substantially as shown and described.

6. The combination of the lever D and the groove and projection on the breech-bolt, as shown and described, for the purpose specified.

7. The devices herein described, or their equivalents, for holding the loaded cartridges in the magazine until after the discharge of the previous one in the chamber of the barrel, substantially as set forth.

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Witnesses:

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