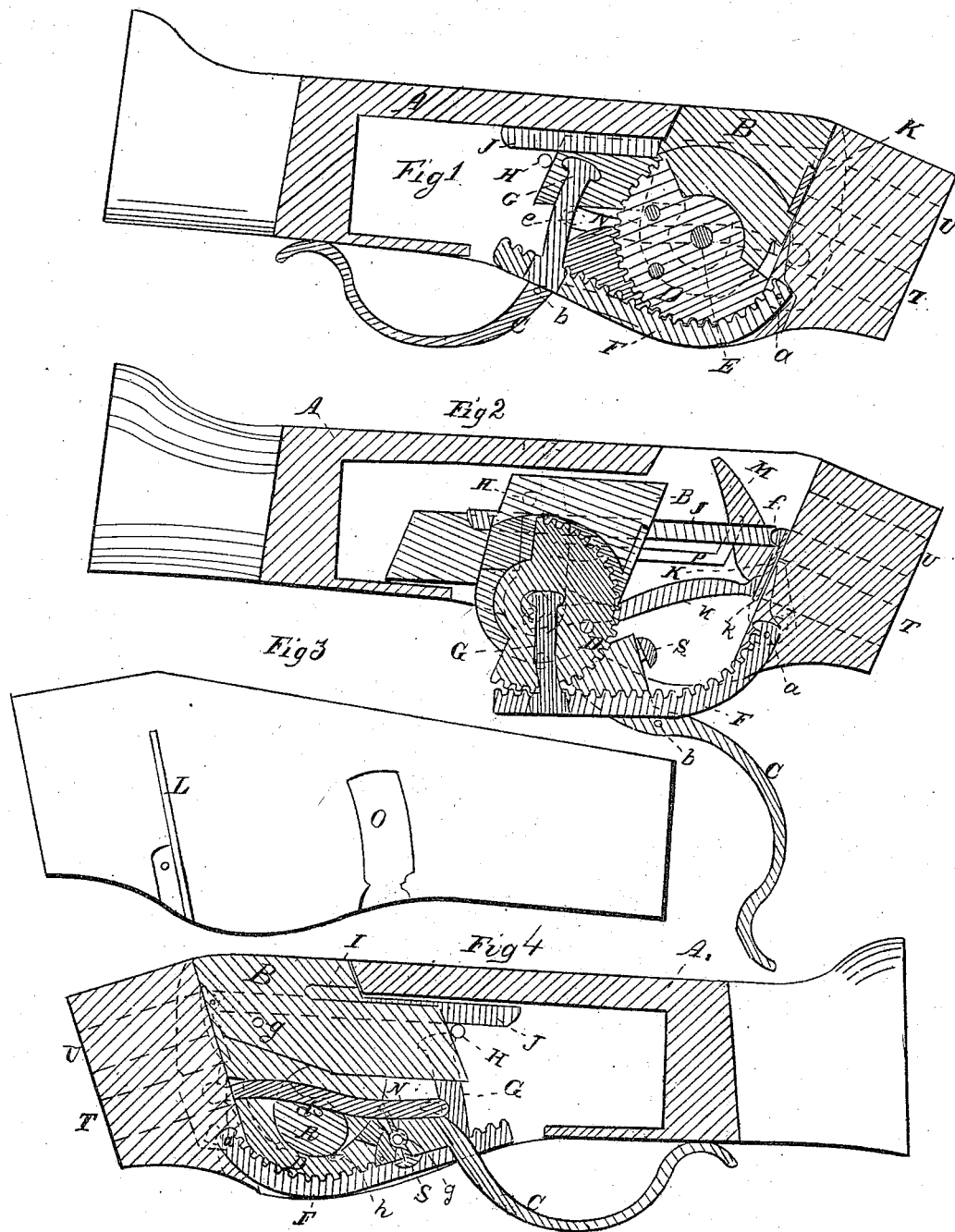


J. GRAY.  
Magazine Gun.

No. 45,560.

Patented Dec. 20, 1864.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOSHUA GRAY, OF MEDFORD, MASSACHUSETTS, ASSIGNOR TO HIMSELF,  
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## IMPROVEMENT IN MAGAZINE OR SELF-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 45,560, dated December 20, 1864.

*To all whom it may concern:*

Be it known that I, JOSHUA GRAY, of Medford, in the county of Middlesex and State of Massachusetts, have invented a new and useful Repeating and Breech-Loading Rifle; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation, showing the movable parts in the position in which they are when the rifle is ready to be fired, the receiver being cut away on one side for the purpose of inspection; Fig. 2, a similar view, representing the breech-pin and its appendages drawn back for the reception of the charge; Fig. 3, an inside plan of that part of the receiver which is removed in Figs. 1 and 2; and Fig. 4, an elevation of the opposite side to that represented in Figs. 1 and 2, the receiver being cut away for the purpose of inspection.

Like parts are represented by the same letters in all the drawings, which are intended to be full-sized.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

A is the receiver, mortised, as shown in the drawings, to receive the breech-pin and its appendages. B is a flat-sided breech-pin or carrier-block, of steel or other suitable metal, about three-quarters of an inch in thickness at its thickest part, and shaped as shown in Figs. 1 and 4. C is the guard-lever, and D is a sector-pinion, either made in one piece with the guard-lever or attached thereto by means of screws. E is a pin fast in the breech-pin, and projecting above it so as to enter a central hole in said sector and form a fulcrum for the guard-lever and sector to turn on, the breech-pin being cut away to receive said sector, so that its outer side shall be flush with the surface of the same. F is a curved vibrating rack, shaped as shown in the drawings, one end of which is attached to the receiver by means of the pivot *a*, the other being free to move from the position shown in Fig. 1 to that of Fig. 2. This rack may, however, be stationary, the pin *b* being removed. I prefer, however, to have it vibrate, as in the latter case it may be covered

by the receiver, as in Fig. 1, instead of being always out in the position shown in Fig. 2. Into the cogs of this rack F fit those of the sector D. G is an arm or continuation of the rack F, sliding freely in the slot *o*, (see Fig. 3,) the upper end of said arm being enlarged so as not to pass the contracted end of the slot, whereby the rack is prevented from dropping away from the sector D when in the position shown in Fig. 2. *h* is a pin projecting from the side of the guard-lever, by means of which pin the rack F is carried and held up in the position represented in Fig. 1. P, Fig. 2, is a slot about one-eighth of an inch wide and deep, the shape and relative position of which are clearly shown in Fig. 2. The purpose of this slot P is to receive the pin *q*, (see Fig. 4,) projecting from the breech-pin, by means of which the front of the latter is guided, the pin H, Fig. 1, preventing the rear of the breech-pin from rising too high and keeping the same in a line nearly parallel with the main body of the stock. I is a slot in the breech-pin (see Fig. 4) to receive the pin H when the breech-pin is thrown back, as represented in Fig. 2, the pin H answering further as a fulcrum, on which the breech-pin turns downward so as to carry the cartridge-lifter below the port of the magazine when the rifle is used as a repeater. J is the cartridge-lifter, consisting of a bar of flat iron or other suitable metal about one-eighth of an inch thick and one-fourth of an inch wide, and passing freely through a longitudinal slot in the center of the breech-pin, as represented by the dotted lines in Figs. 1, 2, and 4. Hinged to the end of the cartridge-lifter J, at *f*, is a flat plate of metal, K, wide enough to cover the port of the magazine T, one side of said plate projecting about one-eighth of an inch beyond the side of the breech-pin and sliding freely in the groove L (see Fig. 3) in the receiver, by means of which the said plate is always kept close to the port of the barrel U or magazine T, whatever may be the position of the breech-pin.

When the rifle is used as a breech-loader, and not a repeater, the breech-pin is drawn back only as far as represented in Fig. 2, in which case the plate K operates as a cover to the port of the magazine T; but if the rifle is used as a repeater, then the breech-pin is

thrown a little farther back, which causes it to pitch downward and carry the top of the plate K below the bottom of the magazine-port, so that a cartridge may be forced from the magazine in the usual manner upon the said carrier, to be raised thereby to the barrel U and forced into it as the breech-pin approaches the position shown in Figs. 1 and 4.

M is a vibrating blade of metal, entering a slot beside the barrel, and confined at its lower end by a pivot, the design of said blade being to extract the metallic case of the cartridge left in the barrel after a discharge. This blade M is drawn out, as represented in Fig. 2, by means of the arm N, one end of which is attached thereto by a socket-joint, and the opposite end provided with a projection, *e*, (see Fig. 1,) which projection, when the breech-pin is drawn back as in Fig. 2, strikes against a shoulder or the end of a recess in the breech-pin, or against the edge of the cam R, as may be required. The blade M is thrown back, as in Fig. 1, by the front of the breech-pin.

The cam R, consisting of a plate of suitable metal, shaped and arranged as shown in Fig. 4, turns freely on a pivot, *d*, in a recess in the side of the breech-pin.

S is a little lever, arranged, as shown in Fig. 4, in a recess in the guard-lever C, and turning freely on the pivot *g*. The outer end of this lever extends beyond the guard-lever, so as to be readily moved, when required, by the thumb or fingers. The inner end is provided with a hook, which, when moved into the position shown in Fig. 4, will, as the guard is brought down, catch onto the hook *h* on the edge of the cam R, which will throw the opposite edge of the cam back from the magazine and barrel, so that the knob *e* on the arm N will strike against it sooner than it would otherwise strike against the shoulder or edge of the recess in the breech-pin, and thus the extractor M will be drawn out, as shown in Fig. 2, and the plate K prevented from passing below the port of

the magazine T, as is required when the rifle is to be used as a breech-loader. When used as a repeater the breech-pin must be thrown still farther back, and the lever S should be so moved that its hooked end will not catch onto the hook *h* of the cam R, so that thus the knob *e* will not strike against the edge of the cam, but against the edge of the recess in the breech-pin, and thus the latter will be allowed to move back the required distance, turning on the pin H in the slot I.

From the above description it is obvious that my rifle may be used either as a repeater or a breech-loader, or instantly changed from the one to the other, as occasion may require.

Having thus described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The rack F, arranged below the sector D, for the purpose described.
2. Moving the cartridge-carrier from the magazine to the barrel, and vice versa, by passing it through a longitudinal slot in the breech-pin and sliding the latter over it.
3. So constructing the end of the cartridge-lifter as to cover the port of the magazine when the rifle is used as a breech-loader.
4. The slot L, to guide the cover or end K of the cartridge-carrier, as described.
5. The cartridge-extractor M, in combination with the arm N, provided with the knob *e*, or its equivalent, as described.
6. The cam R, in combination with the hooked lever S, or their equivalents, for the purpose of withdrawing the cartridge-case without uncovering the magazine when it is required to use the rifle as a breech-loader.
7. The guide-pin H, in combination with the groove I, for stopping and guiding the breech-pin, as described.

JOSHUA GRAY.

Witnesses:

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