J. GRAY.

Magazine Gun.

No. 41,375. Patented Jan. 26, 1864.

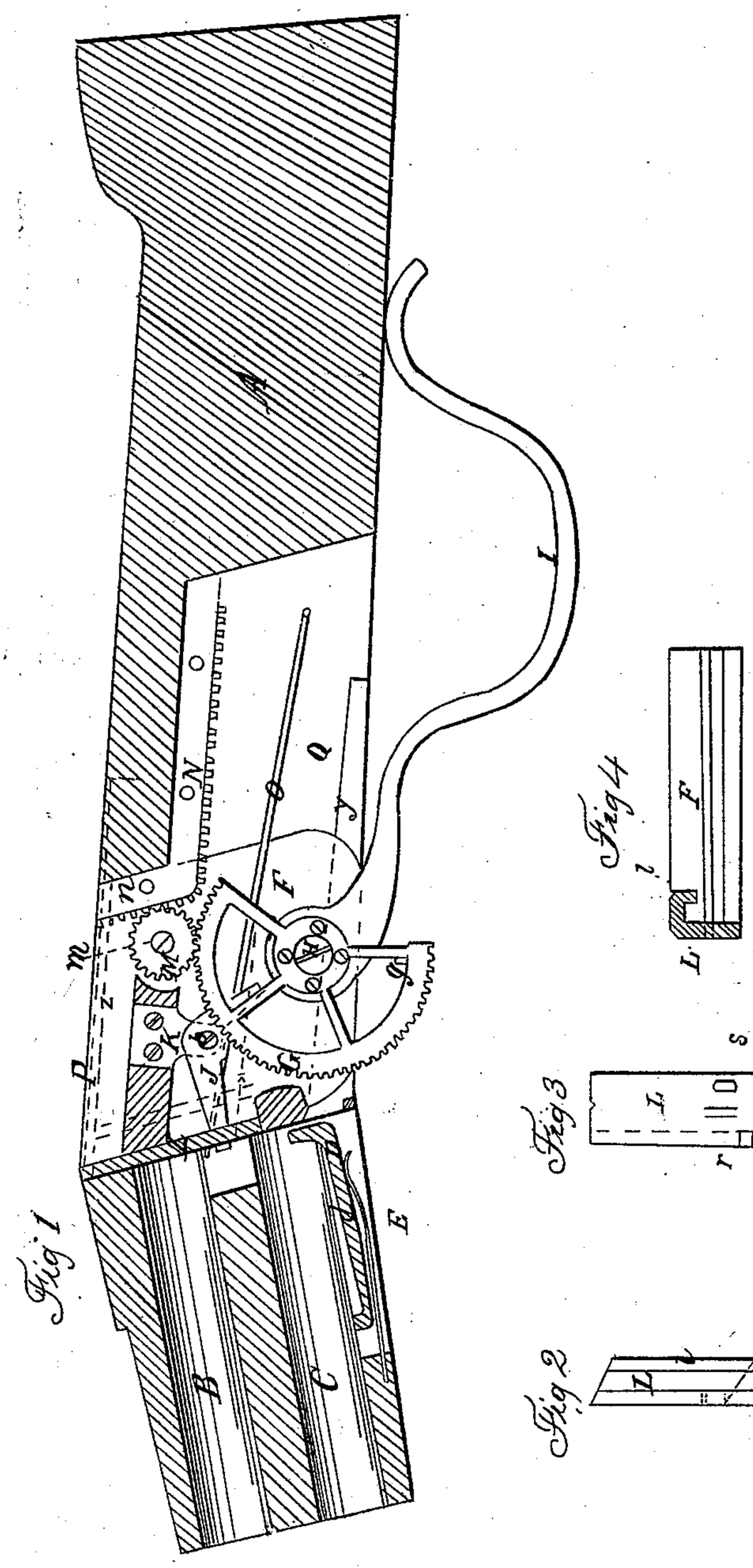


Fig 1




Fig 4




Fig 3




Fig 2

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The drawing on this pa

# UNITED STATES PATENT OFFICE.

JOSHUA GRAY, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN REPEATING FIRE-ARMS.

Specification forming part of Letters Patent No. **41,375**, dated January 26, 1864.

*To all whom it may concern:*

Be it known that I, JOSHUA GRAY, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Repeating-Rifles; 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 represents a longitudinal section in a plane parallel with one side of the breech-pin, showing a side elevation of the same and its appendages; Fig. 2, a side view of the carrier-block, and Fig. 3 a front view of the same.

The nature of my invention consists, first, in moving the breech-pin F both at right angles and parallel with the barrel by means of a curved stationary rack, N, engaging with a small pinion, M, actuated by a sector-pinion, G, both pivoted to the breech-pin; second, in the use of a carrier-block, L, sliding on the front end of the breech-pin F, and actuated by means of a spring cartridge-carrier bar, O, and a lever, J, to which lever motion is communicated, at the proper time, by means of a start, *g*, on the sector-pinion G; and, third, in the employment of a spring-bar, O, for the purpose of carrying up the cartridge from the magazine C to the barrel, as hereinafter described.

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 stock. B is the barrel. C is the cartridge-magazine, of any desirable length, directly under and parallel with the barrel B. D is a lever, turning on the fulcrum *d* in a suitable slot in the stock, the end of said lever being bent at right angles to it, and entering the magazine C, as shown in the drawing, for the purpose of stopping the front cartridge from leaving the magazine until required.

E is a spring, by means of which the end of lever D is pressed up into the magazine, as shown in the drawing, said lever D being thrown out of the magazine at the proper time by means of the bar O, as hereafter explained.

F is the movable breech-pin, the size and shape of which are shown in the drawing Fig. 1, and its thickness in Fig. 2. The lower half of F is about one-eighth of an inch thinner than the rest, forming a shoulder, (represented by the dotted line *x*,) the object of said shoulder being to prevent the breech-pin F from coming out of the slot Q, in which it slides, by coming in contact with the cleat *y*. F is also prevented from rising up too far by means of a similar cleat, Z. (Shown by dotted line in Fig. 1.)

G is a sector-pinion, fast to the guard-lever I, and turning on the pivot H, which is screwed into the pin F.

M (the size and relative position of which is shown in Fig. 1) is a small pinion turning on the pivot *m*, which is screwed into the pin F.

N is a rack, confined to the stock by screws. The longer part of this rack is parallel with the body of the stock, the shorter part, *n*, being at nearly a right angle with the stock A, as represented in Fig. 1.

Thus, the cogs of the pinion M, engaging with those of the rack N and sector G, it is obvious that by turning the latter by means of the guard-lever I the breech-pin F will be moved first downward parallel with the part *n* of the rack, and then along the part parallel with the body of the stock, or vice versa.

L is the carrier-block, the shape of which is shown in Figs. 2, 3, and 4, the part *l*, Fig. 4, moving in a groove in the breech-pin F. This block L is capable of sliding up and down on the end of the breech-pin about one-half of an inch. When pressed against the end of the barrel B, to close the same, the top of L is flush with the top of F; but as the latter descends, the spring-bar O, (the free end of which passes through the slot *r*, Fig. 3) will force L up so as to project about half an inch above F.

J is a bent lever, turning on the fulcrum *b*, one end of said lever passing through slot *s*, Fig. 3, in carrier L, the opposite end projecting over the sector G, so as to come in contact with the start *g* when the lever I is thrown down from the stock toward the barrel sufficiently far, by means of which the spring-bar O will be forced down beyond the end of the magazine C and against the lever D, forcing the latter out of the magazine and allowing a cartridge to drop into the space between the carrier L and the barrel. Then, as the breech-pin F ascends, the cartridge, resting on the

end of O, will be carried up opposite the barrel B, ready to be forced into the same at the proper time, being prevented from rising too high by means of the spring P, which passes over the center of the breech-pin, as shown by the dotted lines in Fig. 1.

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 stationary curved rack N, constructed and operating as described.

2. The spring-bar O, for the purpose of carrying up the cartridge from the magazine to the barrel, substantially as described.

3. The sliding carrier L, in combination with the lever J and spring O, or their equivalents, as and for the purpose described.

4. The combination and arrangement of the rack N, pinion M, and sector G, or their equivalents.

5. The bent lever J, arranged as set forth, and operating in combination with the sliding carrier L and start *g* on the sector G, as and for the purpose described.

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Witnesses:
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