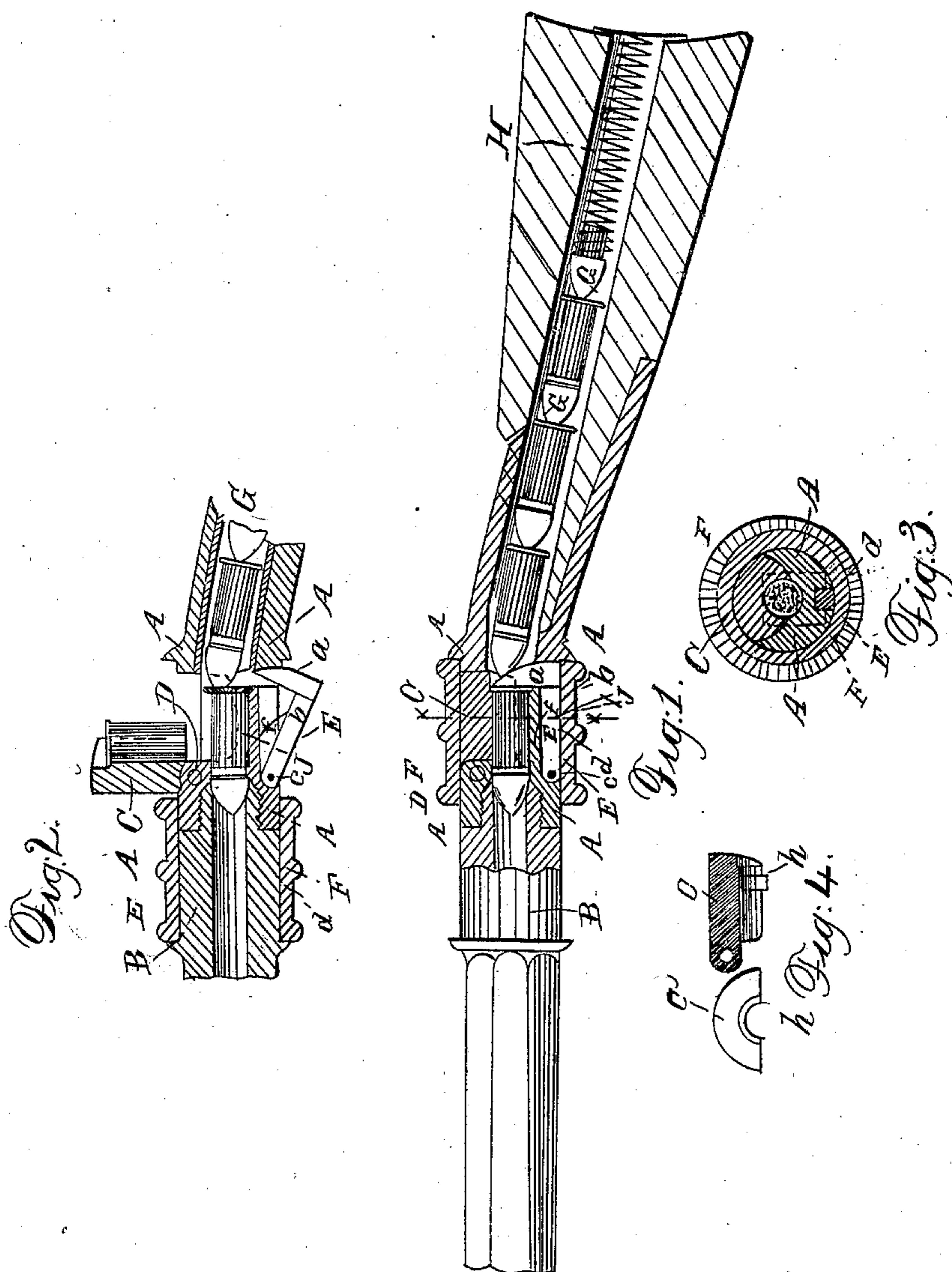


L. C. RODIER.

Magazine-Gun.

No 34,776.

Patented Mar. 25, 1862.



Witnesses.

Milton Bradley
John D. Whipple

Inventor:

Louis C. Rodier

UNITED STATES PATENT OFFICE.

LOUIS C. RODIER, OF SPRINGFIELD, MASSACHUSETTS.

IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. **34,776**, dated March 25, 1862.

To all whom it may concern:

Be it known that I, LOUIS C. RODIER, of Springfield, in the county of Hampden and Commonwealth of Massachusetts, have invented new and useful Improvements in Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification.

In this invention I claim to have produced a fire-arm that can be discharged rapidly enough for practical use, and yet has not so many small parts accurately adjusted as to become easily deranged and thereby rendered useless. It is of the class adapted exclusively for using the metallic cartridge, and is arranged to be used as a magazine or repeating arm, and is at the same time equally well adapted for use as a single shooter. This is a very convenient and important feature of the invention, as if, by accident to any of the parts necessary to feed the charges from the magazine, they should fail to perform their duty, or if the operator could not stop to replenish the magazine when it had become exhausted, any number of single shots could be fired without regard to the magazine.

In constructing a fire-arm for using metallic cartridges several things are particularly important to be observed: First, a convenient arrangement must be provided for rapidly introducing the cartridges into the chamber of the barrel; secondly, a sure way must be provided for removing the shell of the exploded cartridge; thirdly, some means must be adopted for packing any joint formed in the chamber for inserting the cartridge or removing the shell, to prevent the escape of gas and smoke.

In the drawings, Figure 1 is a partial longitudinal section of the fire-arm, showing the several parts of my invention in a position ready for discharging. Fig. 2 is a sectional view with the several parts in a position for removing the shell of the exploded cartridge. Fig. 3 is a cross-section at *x y*. Fig. 4 is another form for a portion of the breech-chamber.

The lock-work and hammer are not shown, as they have no connection with my invention.

Like letters of reference indicate the same parts in each of the several figures.

A is a breech-frame, and contains a portion of the breech-chamber in which the cartridge is exploded. B is the barrel, screwed into the forward end of the breech-frame. C is a portion of the breech-chamber hinged at its forward end, at D, to the breech-frame A. The use of this piece C is to close the opening formed for introducing the cartridge when it is desired to use the arm independently of the magazine, and also to serve to remove the shell of the exploded cartridge from the chamber. In order to insure the closing of the opening and prevent the escape of gas, I so proportion the piece C to the cartridge used that the forward end of the opening shall be back of the forward end of the shell of the cartridge a sufficient distance to allow said shell to operate as a packing to close the joint between the piece C and the main part J of the chamber, which part is a portion of the breech-frame.

To enable the piece C to remove the shell of the cartridge, I make C to contain a little more than one-half the diameter of the bore of the breech-chamber; or, in other words, that portion of the joint between the piece C and J that is parallel with the axis of the bore intersects the bore below its center. Thus when the cartridge has been discharged, and consequently the shell expanded to the full size of the bore of the chamber, it is held in the piece C, and when that is raised on its hinge, which is at its forward end, the back end of the shell is raised, and that portion that extends forward into the chamber forward of C is drawn out at the rear.

By the application of a spring-clasp to C for the purpose of grasping the shell the longitudinal division of the two parts of the chamber might be made exactly at the center of the bore, but it would not be as simple as the arrangement first described.

Fig. 4 shows a piece, C, containing only one-half the bore and provided with a spring, *h*, for removing the shell. As will be seen, this piece C is shown with two plane faces to form a joint with the main part of the chamber, while in Fig. 3 it is shown as a portion of a

circle. The form of the joint makes no difference with the operation of the parts, the form shown in Fig. 3 being adapted to give additional strength to the breech-frame and to reduce the weight of C.

E is a movable hinged breech-piece or recoil-shield, the object of which is twofold: First, a movable breech is necessary in connection with the piece C to allow the cartridge, of the form here shown, to be removed by C, as the motion produced by swinging on D would carry the rear of the cartridge-case against the breech, which, if permanent, would resist any attempt to remove it by such means, as will be seen in Fig. 1. But with this arrangement the hinge-breech drops when uncovered by sleeve F and gives a free passage for the cartridge-shell. Secondly, the piece E operates as a combined breech-piece or recoil-shield, to resist the recoil of the cartridge when exploded; and a separator to divide the chamber from the magazine. It consists of a wedge-shaped piece, *a*, wide enough to cover the mouth of the magazine, and a tongue, *b*, connecting the pin *a* to a hinge, *c*, on which it swings. The back face of *a* is concentric with the hinge *c* and fits accurately to a corresponding surface in the breech-frame, the hinge-joint being made sufficiently free to relieve itself of any strain by the explosion.

F is a ring or ferrule sliding over the breech-chamber for the purpose of carrying the hinged breech to its place and confining the several parts securely in place when the cartridge is to be discharged. This ferrule is no part of the breech, and serves merely for the purpose above described. *d* is a friction-spring inside the ring F, to hold it in whatever position it is placed on the barrel or chamber. G is a tube or magazine in the stock of the fire-arm for receiving a number of cartridges. H is a spiral spring in this tube for forcing the cartridges out into the breech-chamber. Now, this tube is so situated that its forward end is a continuation of the breech-chamber, so that when the hinged breech is dropped out of the way and the exploded shell removed the passage is clear to allow the spring H to force a cartridge directly into the breech-chamber without the intervention of other mechanism, thus saving somewhat in the length of the fire-arm, making the breech part more compact, and saving all small nicely-fitted parts, which are expensive to make and liable to become deranged.

Now, having described the construction and arrangement of the several parts in detail, I will briefly describe an operation of the arm.

Supposing the several parts to be in position seen in Fig. 1, by means of suitable and well-known devices we discharge the cartridge, which forces out the ball, leaving the shell in its position, as shown. Now grasp the ring with the hand and slide it forward toward the muzzle of the barrel. Immediately the breech-piece E falls by its own weight and the

force of the spring *f*, and by raising the piece C the cartridge-shell is taken out of the chamber, and another cartridge is thrown in by the spring H, all the several parts assuming the positions shown in Fig. 2, in which it will be seen that the shell is in a position very convenient for being removed by the fingers, as the mouth of the shell is accessible. Having removed the shell, drop the piece C and slide the ring F back. As it moves back it comes in contact with the under side of the tongue *b* of the hinged breech, which serves as a movable inclined plane, on which the ring operates to force the wedge-shaped part *a* up between the rear of the cartridge-case in the chamber and the point of the one next behind it, forcing the latter back sufficiently to allow the wedge to come into its place to serve as a recoil-shield to the breech-chamber. Now, as the back of this wedge has a firm bearing on the breech-frame A, the force of the recoil is divided into two forces, one of which is resisted by the breech-frame and the other by the ring F; but, owing to the position of the center of the hinge *c*, the greater part of the force comes directly on the frame, leaving only a small amount to be resisted by the ring.

Now, having fully described the construction and operation of my invention, I do not claim a sliding breech of any form whatever; neither do I claim the ring or ferrule as operating to open or close the breech or any part of the barrel, as I have distinctly described it as not operating for such a purpose.

Furthermore, I do not claim any breech-chamber divided longitudinally throughout any portion of its length, unless that division is made sufficiently near the center of the bore to allow the shell to be conveniently removed from the part holding it in a direction perpendicular to its axis—that is, without the necessity of sliding it out at the end of the bore; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. A fire-arm in which the breech-chamber is divided longitudinally throughout a portion of its length, at or near the center of the bore, and the two parts hinged together at a point forward of the said division in the chamber, when the two parts are so proportioned to each other and to the cartridge used that the cartridge-shell shall extend forward of the forward end of this said division or joint a sufficient distance to allow the shell to serve as a packing to the joint, the whole being arranged substantially for the purpose herein specified.

2. The movable breech-piece E, when used in combination with a breech-chamber constructed as above described, for the purpose of allowing the shell to be removed by the piece C, in the manner substantially as herein set forth.

3. The ring or ferrule F, in combination with the breech-piece E for confining it in its

place when operating, substantially as herein described.

4. The combination of the movable wedge-shaped breech-piece with the magazine G, having a spring for forcing out the cartridges contained therein, when said magazine is situated with relation to the bore of the breech-chamber in such manner that the forward end of the magazine is a continuation of the bore of

the chamber, so that the force of the spring in the magazine throws the cartridge directly into the bore of the chamber without the intervention of other device.

LOUIS C. RODIER.

Witnesses:

MILTON BRADLEY,
JOHN M. WHIPPLE.