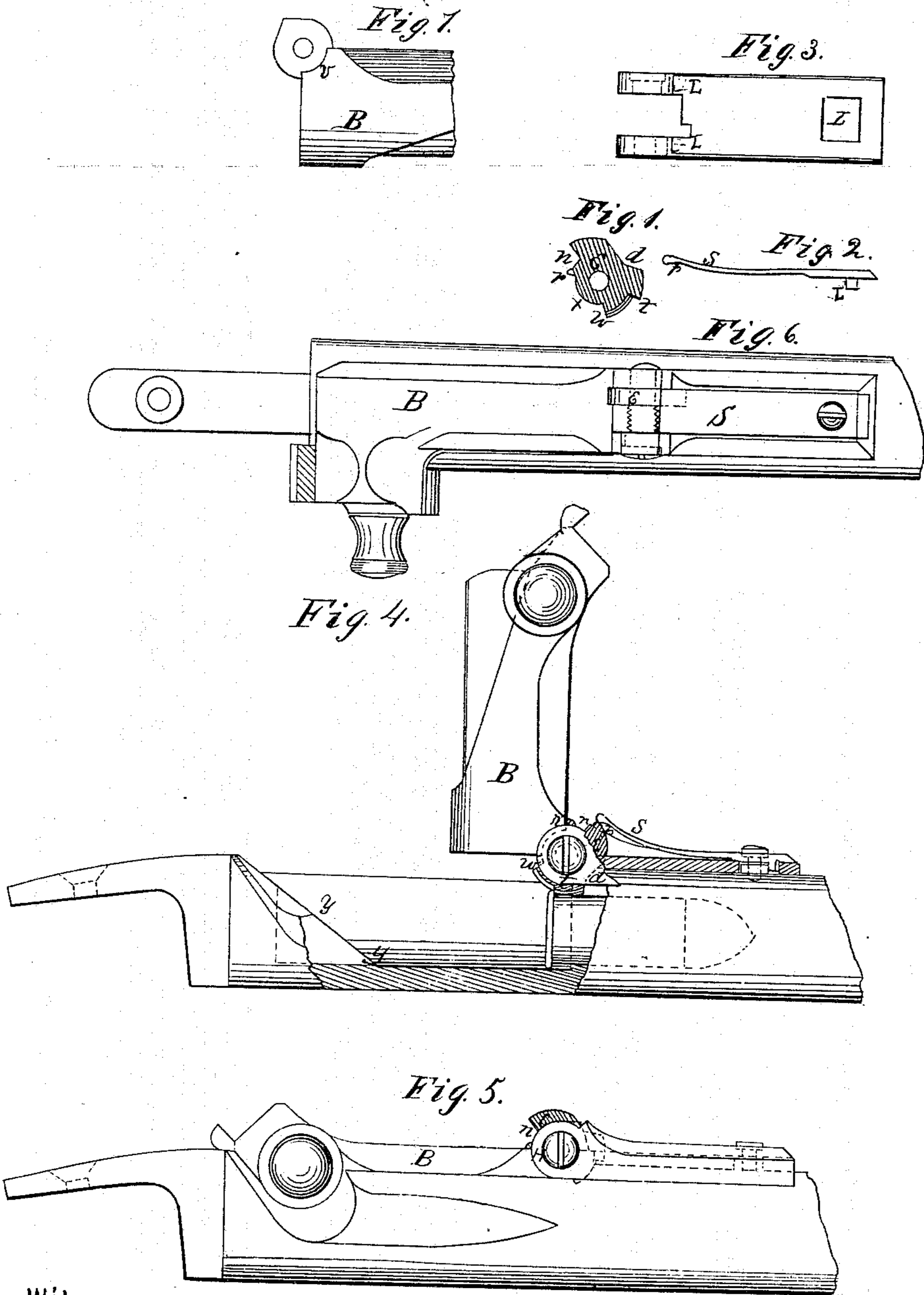


A. BALL.
 CARTRIDGE RETRACTOR FOR BREECH LOADING FIREARMS.
 No. 60,664. Patented Jan. 1. 1867.



Witnesses:
Horace T. Love
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Inventor:
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United States Patent Office.

ALBERT BALL, OF WINDSOR, VERMONT, ONE-HALF ASSIGNED TO WINDSOR
MANUFACTURING COMPANY OF SAME PLACE.

Letters Patent No. 60,664, dated January 1, 1867.

IMPROVEMENT IN CARTRIDGE RETRACTOR FOR BREECH-LOADING FIRE-ARMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ALBERT BALL, of the town and county of Windsor, in the State of Vermont, have invented a new and improved Mode of Ejecting Exploded Cartridge Shells from the Barrel Chamber of Breech-Loading Guns; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

Figure 1 shows a side view of the rotating ejector, detached.

Figure 2 shows an edge view of the operating spring, detached.

Figure 3 shows an under side of the spring-holder, exhibiting locks for fastening to the barrel.

Figure 4 shows opening in gun barrel for ejecting cartridge shell; partial longitudinal section.

Figure 5 shows breech of gun barrel, with ejecting apparatus attached; side view.

Figure 6 shows same as fig. 5; top view.

Figure 7 shows section of carrier-block; side view.

My invention consists in the ejector, E, rotating freely, for the purpose of taking on a suddenly accelerated movement or jerk, which said movement is created by the spring, S, striking its protuberance, *p*, into the notch, N. I thus generate a movement equivalent to that of a rotating cam, and my principle is the same whether jerk is produced by a cam or by a spring playing over or under the rotating ejector, or endwise thereto; the essence of my invention being the rotating ejector taking on accelerated movement or jerk by a spring. And my invention consists further in the spring, S, operating the said ejector as aforesaid. Also, in the locks, L L L, of the spring-holder, whereby the same is fastened to the barrel. Also, in the mechanism whereby the carrier-block, B, when shut, will not of itself open, and when open, will not of itself shut, to be more particularly described hereinafter.

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

The concave surface, *v*, constructed on the hinge, *h*, of the carrier-block, B, is made to play loosely on the convex surface, *x*, to allow of the jerk movement, while the shoulders, *r* and *w*, on the ejector serve to rotate it backward and forward, according to the swing of the carrier-block; the said shoulder, *w*, serving also to fix the limit in distance for the jerk movement. Now, the exploded cartridge shell being in the chamber of the gun barrel, when the carrier-block is swung open, the tooth, *t*, pressing against the rim of the shell, draws it backward from the chamber by a gradual movement until the spring, S, passing as gradually over the edge of the ejector, reaches the notch, *n*, when, striking therein suddenly, it converts the hitherto gradual rotating of the ejector into a jerk or kick, whereby the shell is pitched out headlong from the gun; the carrier-block having been thus swung open for the purpose of rotating the ejector preparatory to the jerk, and by said swinging having got out of the ways, *y y*, for the shell to pass out. The spring, when resting in the notch, *n*, serves the purpose also of holding the carrier-block open, so that it will not of itself shut; and when resting in the depression, *d*, of the ejector, of holding the carrier-block shut, so that it will not of itself open.

The advantages of my invention are numerous, among which I mention that—

First. I thus make the apparatus for ejecting shells out of fewer pieces of metal, and consequently at less expense than when made otherwise.

Second. I make it much less complicated, and consequently less liable to get out of order. I have no small springs to be disabled by water, or rust, or dirt, or to be easily broken.

Third. My operating spring is not held in constant tension and strain, there being no pressure thereon by the cartridge shell in the chamber, as is the case with ejectors made otherwise, which constant strain soon weakens the spring and renders it useless.

Fourth. My carrier-block remains open or shut, as I put it, thus contributing to much greater rapidity of loading and firing than when not thus disposed; rapidity of firing being an element of great importance in the purposes of breech-loading guns.

Fifth. The whole apparatus is easily taken apart when requisite for cleaning or otherwise, requiring only the turning out of a small screw to unlock the fixtures.

Sixth. The fixtures are attached without cutting away the stock, or making thereon or therein any change in any way whatsoever; a very important consideration in the case of converted guns.

Seventh. The fixtures are attached without cutting away and weakening the barrel, the opening to the cartridge chamber being of the smallest possible size, only sufficient for the ingress and the egress of the cartridge shell.

I disclaim as my invention the use of the mechanism shown for the purpose of inserting cartridges into the chamber of breech-loading guns.

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

1. I claim the carrier-block B, in combination with the shoulder *r* of the rotating ejector, or equivalents, for the purpose of creating the gradual movement of the cartridge shell when the carrier-block is being swung open, as described.

2. I claim the operating spring S, in combination with the notch *n* and shoulder *w* of the rotating ejector, or equivalents, for the purpose of creating the jerk movement and restricting the same, as described.

3. The combination of the spring, and hinge, and ejector, to hold the carrier-block open or shut.

4. The combination of the spring, and hinge, and ejector, and carrier-block, and ways, to cast the cartridge shell out when the ejector is operated by opening the carrier-block, as and for the purposes substantially described.

ALBERT BALL.

Witnesses:

HORACE T. LOVE,

LUTHER W. HAWLEY.