

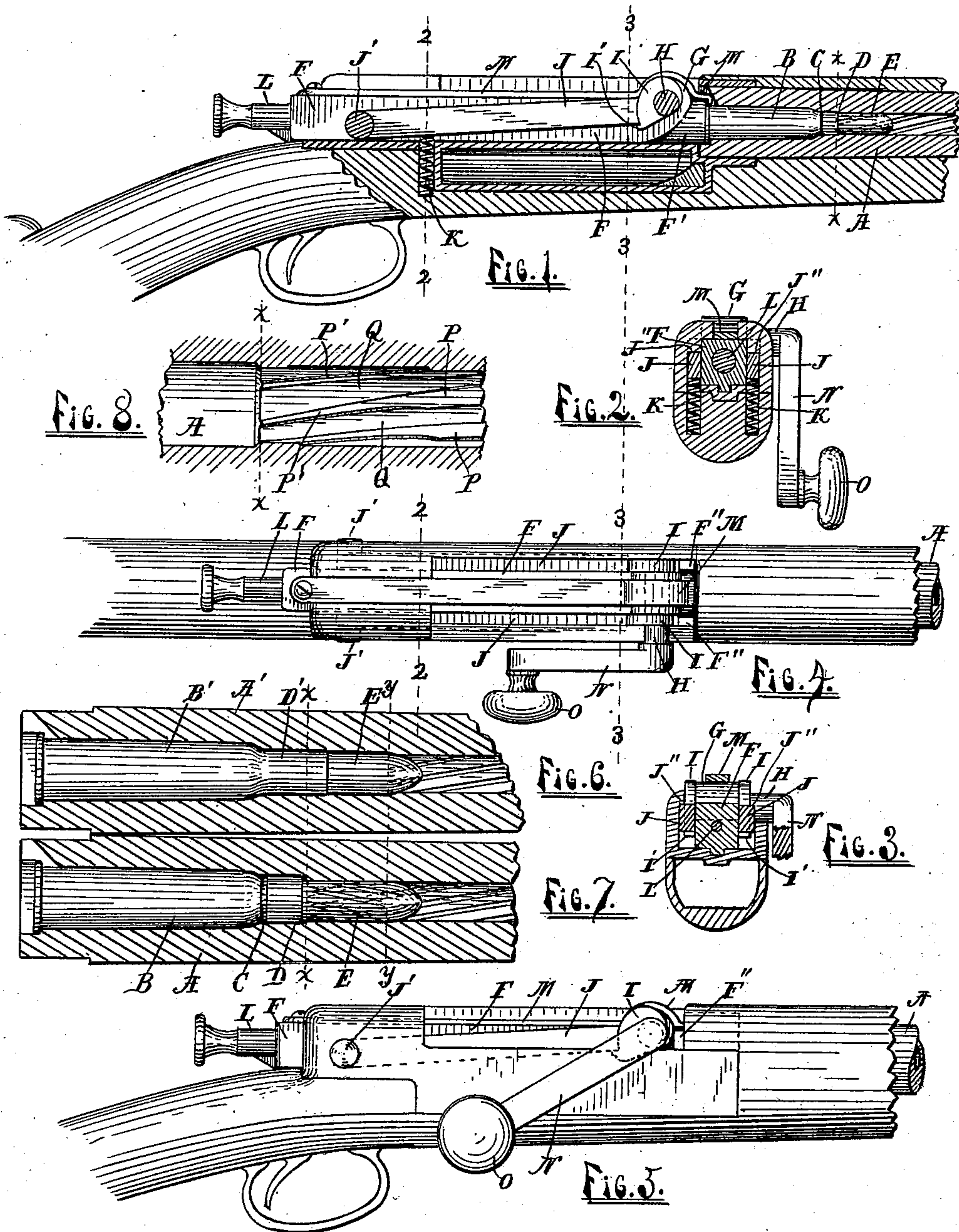
No. 695,819.

Patented Mar. 18, 1902.

M. C. LISLE.
BREECH LOADING FIREARM.

(Application filed Jan. 26, 1900.)

(No Model.)



WITNESSES:

Palmer A. Jones.
Miles V. Easterby.

INVENTOR:

Myron C. Lisle.

By

Luther V. Moulton
His Attorney

UNITED STATES PATENT OFFICE.

MYRON C. LISLE, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR OF ONE-HALF
TO FRANK A. SIMONDS, OF GRAND RAPIDS, MICHIGAN.

BREECH-LOADING FIREARM.

SPECIFICATION forming part of Letters Patent No. 695,819, dated March 18, 1902.

Application filed January 26, 1900. Serial No. 2,870. (No model.)

To all whom it may concern:

Be it known that I, MYRON C. LISLE, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Breech-Loading Firearms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in breech-loading and rifled firearms. Such arms as usually made and operated rely upon the impulse of the powder charge to force the projectile into the rifling, and thereby changing the form of the projectile to fit the rifling. This is objectionable in that the sudden impact of the projectile against the lands and the instantaneous change of the form of the projectile abrades the projectile and also rapidly wears the rifling near the breech. The resistance due to this operation also reduces the initial velocity of the projectile and, furthermore, tends to laterally enlarge the projectile if it is made of soft metal, whereby it fits so tight that undue friction and wear are induced throughout the entire length of the barrel, thus still further retarding the said initial velocity of the projectile. If a hard projectile or a hard covering is used on the same, the change of form requires still more power and more rapidly wears the rifling. To avoid these difficulties, it has been proposed to form the projectile to fit the rifling in advance of placing it in the gun-barrel; but this is defective in that it is very difficult to secure an accurate fit and no provision can be made for the wear of the barrel by use, and also that it requires special manipulation to properly insert such projectiles in the gun-barrel.

The object of my invention is to overcome the foregoing objections and to provide the device with certain new and useful features hereinafter more fully described, and particularly pointed out in the claims.

My invention consists, essentially, in providing the gun with means for forcing the projectile into the rifled portion of the gun-barrel by manual power or some power other than that of the powder charge prior to firing

the said charge, and thus changing the form of the projectile and fitting it accurately within the rifling at the time that the projectile is placed in the gun-barrel, as will more fully appear by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a device embodying my invention, shown partly in longitudinal vertical section; Fig. 2, a transverse section on the line 2 2 of Fig. 1; Fig. 3, a transverse section on the line 3 3 of Fig. 1; Fig. 4, a plan view of the device; Fig. 5, a side elevation of the device; Fig. 6, an enlarged section of the breech end of a rifle-barrel and side view of a cartridge, both being as usually made; Fig. 7, the same as modified for my device, and Fig. 8 a modification of the rifling near the breech.

Like letters refer to like parts in all the figures.

A represents a modified construction of the rifle-barrel, which barrel is chambered out at the rear to receive the ammunition, the chamber terminating and the rifling commencing at the line X X of Figs. 1, 7, and 8. In Fig. 8 is shown the modified form of rifling to permit the easy insertion of the projectile before firing. The lands P are reduced in width at their rear ends, as shown at P', and the grooves correspondingly widened, whereby less compression of the projectile is required. The side of the lands that do not operate to rotate the projectile may be beveled, as shown in Fig. 8.

B is a modified form of ammunition proposed, in which the forward portion of the shell is reduced in length, and an inwardly-pressed bead C is formed in the shell to engage the rear end of the projectile E and prevent the same from being pressed farther into the shell, the usual construction being as shown in Fig. 6, in which the shell B' has a reduced forward end D', extending forward upon the projectile E about one-half its entire length.

F is the bolt for closing the breech end of the barrel, which bolt is square in cross-section throughout its length, except a small portion F' at the front, to enter the counter-bore at the rear of the barrel and engage the end of the cartridge-shell.

G is a transverse semicylindrical enlarge-

ment of the bolt to form a bearing for a shaft H, journaled therein, said shaft being provided at its outer end with a crank N and handle O and having cams I I at each side of the bolt F, which cams engage the ends of breech-bolt-locking bars J, pivoted at their rear ends by outwardly-projecting lugs J', engaging openings in the receiver. Said bars are yieldingly supported in raised position by springs K and limited in their upward movement by inwardly-projecting shoulders J'' in the sides of the receiver. The cams I are provided with stops I' at their greatest radius to engage the under side of the bars J and prevent further forward rotation of the cams.

M is an extractor.

F'' represents abutments with which the cams engage when turned backward.

L is the firing-pin in the axis of the bolt F.

The parts are shown in closed position and ready for firing. By turning the crank backward—that is, downward, forward, upward, and rearward—the cams first engage the abutments F'', thus forcing the bolt backward and starting the shell of the cartridge. Next the cams depress the forward ends of the bars and engage the upper side of the same. The crank N will then project backward, and by pulling on the same the cams will run back over the bars and the bolt will be manually drawn back to remove the shell. Another shell being placed in front of the bolt the same is forced forward until the shaft H passes the forward ends of the bars J, which bars will then rise behind the cams. The crank N can then be turned forward, and the cams will engage the ends of the bars and force the bolt forward with sufficient power to drive the projectile E into the rifled portion of the barrel, whereby the projectile will be changed in form by manual power and accurately fitted to and within the rifling of the barrel, so that when the charge is fired there will be no escape of gas, and the projectile will start without the impact and other injurious results due to the previous construction and operation.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a gun, the combination of a rifled barrel, and means for forcing the projectile into the rifled portion of the barrel by the manual operation of the breech-bolt, whereby the form of the projectile is changed to correspond with, and fit into the rifling within the barrel, prior to firing the propelling charge.

2. In a gun, the combination of a rifled barrel, a longitudinally-movable breech-bolt, and means for moving and locking the breech-bolt when combined, arranged, and operated to force the projectile into the rifled portion of the barrel, and to simultaneously change the form of the projectile to accurately fit the rifling previous to firing the propelling charge, substantially as described.

3. In a gun, the combination of a barrel having a smooth shell-chamber and a rifled bore of substantially uniform diameter extending wholly to the shell-chamber, and means for forcing the projectile into the rifled portion of the barrel by manual power previous to firing the propelling charge, whereby the projectile is changed in form and accurately fitted to the rifling, substantially as described.

4. The combination of a gun-barrel, having a smooth shell-chamber and a rifled portion extending wholly to the shell-chamber, a longitudinally-movable breech-bolt to close the rear of the barrel, a cam to move the bolt, and means for manually operating the cam, whereby the projectile is forced by the breech-bolt into the rifled portion of the barrel previous to firing the propelling charge, and whereby the projectile is changed in form to fit the rifling of the barrel, substantially as described.

5. In a breech-loading gun, a longitudinally-movable bolt to close the breech, a transverse shaft journaled in the bolt, means for rotating the shaft, cams on the shaft, and spring-actuated bars to engage the cams, substantially as described.

6. In a breech-loading gun, the combination of a longitudinally-movable bolt, rectangular in cross-section, pivoted bars at each side of the bolt, a transverse shaft journaled in the bolt, cams on the shaft to engage the bars, and a crank on the shaft, substantially as described.

7. In a breech-loading gun, the combination of a longitudinally-movable bolt, bars at each side of the bolt pivoted at their rear and supported at the front by springs, a transverse shaft journaled in the bolt, a crank on the shaft, cams on the shaft engaging the bars, and stops on the cams, substantially as described.

8. In a breech-loading gun, the combination of a longitudinally-movable bolt, a transverse shaft journaled in the bolt, a crank and cams on the shaft, bars to engage one side of the cams, and abutments to engage the opposite side of the cams, substantially as described.

9. In a breech-loading gun, the combination of a longitudinally-movable bolt, rectangular in cross-section, bars at each side of the bolt pivoted at their rear ends and having a limited vertical movement at their forward ends, springs to raise said bars, a transverse shaft journaled in the bolt, a crank on the shaft, cams on the shaft engaging the bars, stops on the cams, and abutments opposite the bars to engage the cams, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

MYRON C. LISLE.

Witnesses:

LUTHER V. MOULTON,
PALMER A. JONES.