

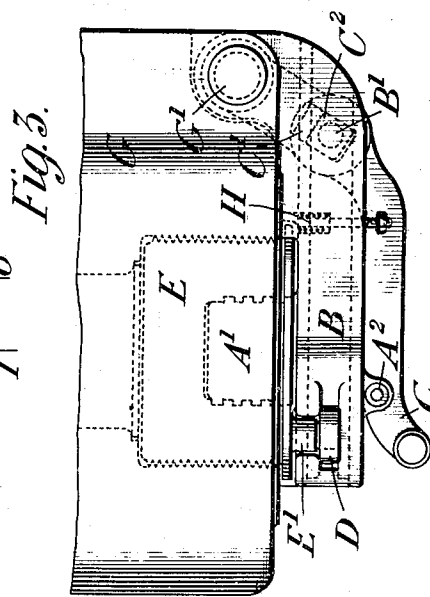
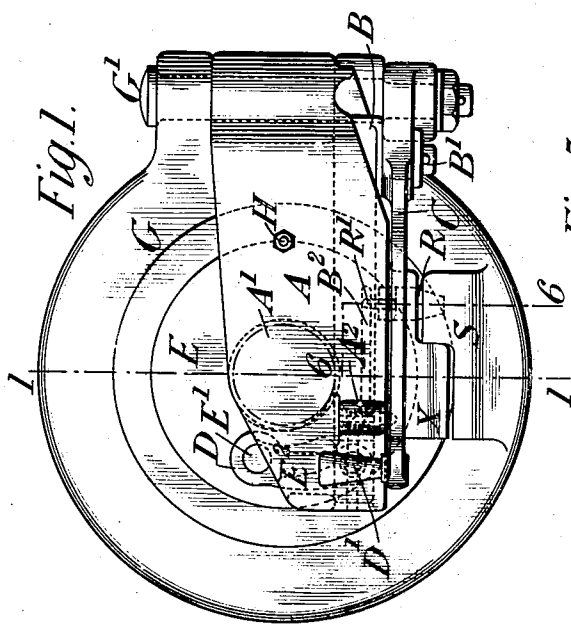
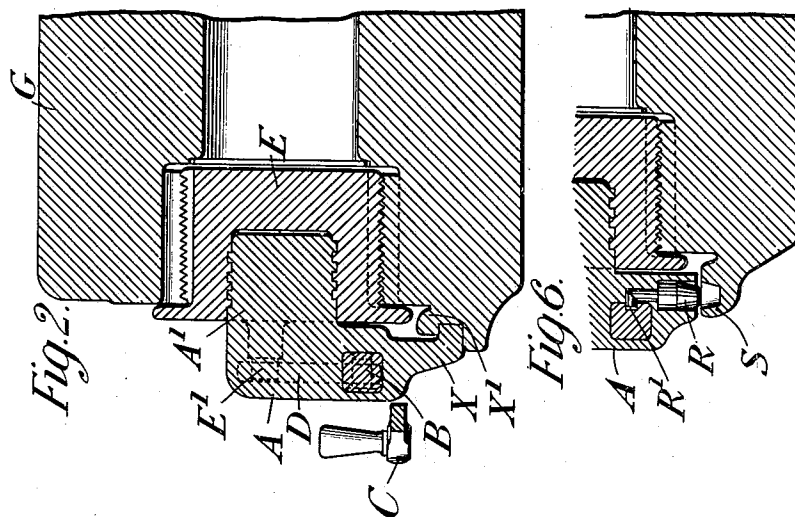
(No Model.)

3 Sheets—Sheet 1.

D. VICKERS.
BREECH LOADING ORDNANCE.

No. 578,172.

Patented Mar. 2, 1897.



Witnesses
Thos A. Green
Robert G. Smith

Inventor:
Douglas Vickers.
By James L. Norris.
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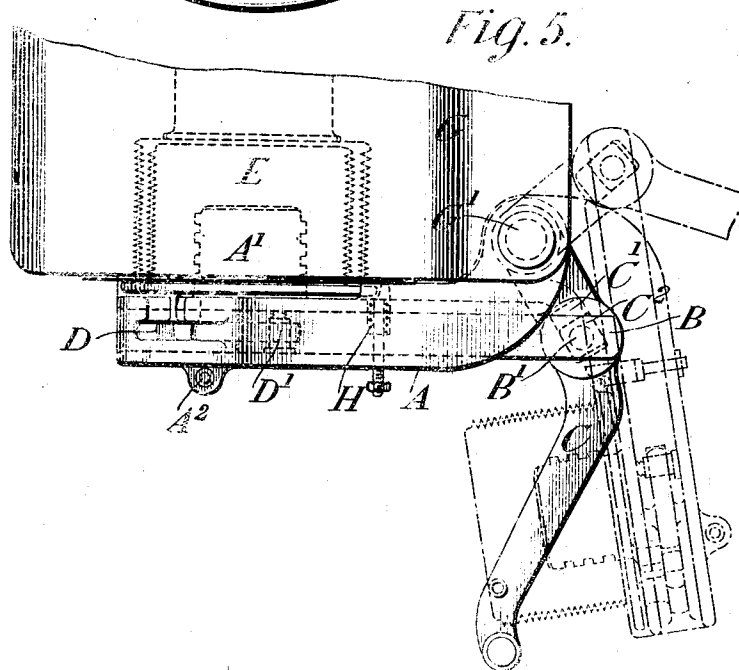
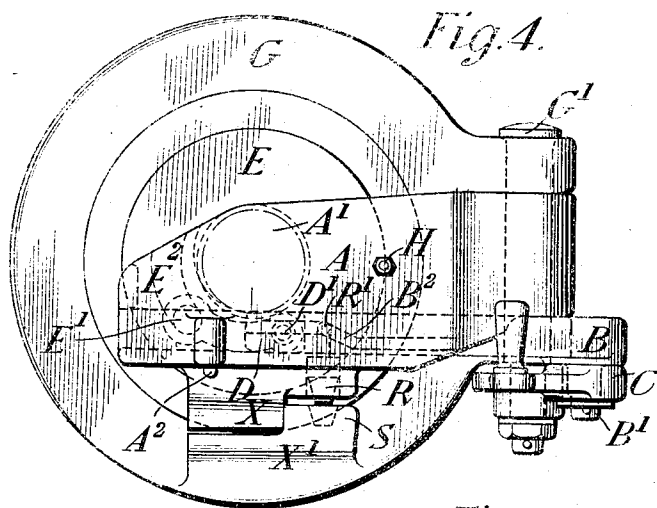
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No. 578,172.

Patented Mar. 2, 1897.



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(No Model.)

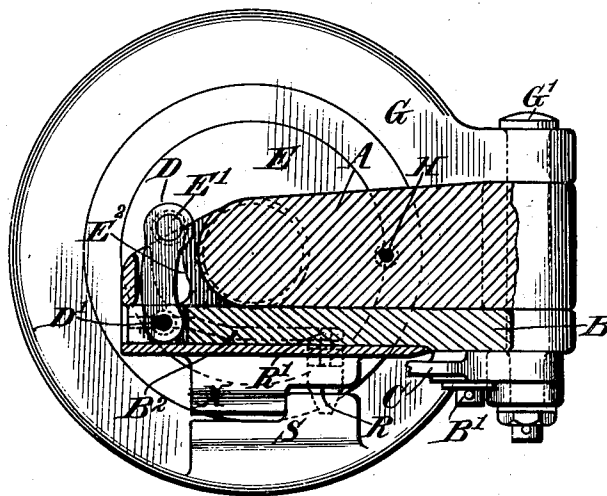
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Fig. 1.



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UNITED STATES PATENT OFFICE.

DOUGLAS VICKERS, OF SHEFFIELD, ENGLAND.

BREECH-LOADING ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 578,172, dated March 2, 1897.

Application filed March 6, 1896. Serial No. 582,093. (No model.)

To all whom it may concern:

Be it known that I, DOUGLAS VICKERS, a citizen of England, residing at River Don Works, Sheffield, in the county of York, England, have invented a certain new and useful Improvement in Breech-Loading Ordnance, of which the following is a specification.

This invention relates to the mechanism for opening and closing the breech of a breech-loading gun, which mechanism I arrange in such manner that a continuance of the same action which rotates and unlocks the breech-plug swings it out of the gun around the pivot on which it is mounted. The closing of the breech and the locking of the plug are similarly effected by the reverse action.

I shall describe this invention, referring to the accompanying drawings.

Figure 1 is a rear elevation of a gun having a breech mechanism in accordance with this invention. Fig. 2 is a part section on the line 1 1 of Fig. 1, and Fig. 3 is a plan. Fig. 4 is a rear elevation, and Fig. 5 is a plan, of the breech-plug being unlocked, the dotted lines in Fig. 5 showing the breech-plug swung out. Fig. 6 is a part section on the line 6 6 of Fig. 1. Fig. 7 is a vertical section through the plug-carrier and sliding bar.

In the plug-carrier A is fitted a horizontal sliding bar B, one end of which is connected by a pin B', engaged in a sliding block C², working in a slotted hole C', to a lever C, which is mounted on the same pivot G' with the carrier A and which can be moved by hand, or it might be by worm-gear in the case of a large gun. The other end of the sliding bar B is connected by a link D to a stud E', projecting from the rear face of the breech-plug E, this link D standing at right angles to the bar B, or nearly so, when the plug E is locked in the breech G.

The breech-plug E may be of any suitable form that will swing out clear of the gun immediately after being unlocked without requiring any longitudinal movement to the rear.

The breech-plug E is fitted to turn on a fixed stud A', projecting inward from the carrier A, by screw-threads, preferably interrupted and equal in pitch to the threads of the breech-plug E.

The action in opening the breech is as fol-

lows: On swinging the lever C away from the gun the sliding bar B is moved some distance horizontally toward the pivot G' of the carrier A. This movement of the bar B by means of the connection of the link D to the stud E' causes the plug E to turn partly around, at first slowly and then more rapidly, until it becomes unlocked. The stud E' having then reached the end of a curved groove E² cut for it in the carrier-arm, as shown in Fig. 4, the plug can turn no farther. The extent to which the plug E is turned so as to unlock it is so small a fraction of a complete revolution, generally about one-sixth, and the pitch of the thread on the stud A' is so small that the plug E in making its partial revolution for unlocking screws itself a very little way on the stud A'. By continuing to swing the lever C away from the gun the carrier A is swung out, withdrawing the plug E from the breech. As the carrier recedes from the breech-face of the gun a catch H, which was pressed against a spring while its end was bearing against the rear face of the gun, is allowed to move forward in obedience to the spring, entering a notch in the flange of the breech-plug E, so as to prevent the plug E from turning on the stud A' when it is partially or wholly out of the breech.

By swinging the lever C toward the gun the plug E is first introduced into the breech G. The catch H, meeting the breech, is pushed back, so that when the plug is in position for locking its notch is no longer occupied by the catch H and the plug is free to turn on the stud A'. By further movement of the lever C the plug is turned partly around and locked. The center of the pin D', connecting the bar B to the link D, is so arranged as to pass the vertical line of the center of E', thus preventing the plug E from becoming unlocked by the shock when the gun is fired.

On the face of the plug-carrier A is fitted a spring-catch A², having a rounded end entering a hollow of the lever C, so as to prevent the lever from dropping by gravity when the breech end of the gun is depressed, but to yield, allowing it to be pulled rearward by hand.

A hook X, projecting from the carrier A and fitting into another hook X', fixed to the breech

of the gun, serves to steady the carrier vertically when it is subjected to the strains of locking and unlocking.

For the purpose of locking the carrier
5 against the breech a bolt R, fitted in the carrier A, is provided at its upper end with a projection R', which works in a partly straight and partly inclined groove B² in the bar B. By the movement of the bar B in closing the
10 breech the bolt R is pushed into a bolt-hole on a projection S, fixed to the breech.

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, I claim—

15 1. In combination with the breech-plug of a gun, an actuating-lever a carrier in which is fitted a sliding bar, its one end having a pin working in a slotted hole in the actuating-lever, its other end connected by a link to a
20 stud projecting from the breech-plug, substantially as and for the purpose set forth.

2. In combination with the breech-plug of a gun, an actuating-lever a carrier in which is fitted a sliding bar, its one end having a pin working in a slotted hole in the actuating- 25 lever, its other end connected by a link to a stud projecting from the breech-plug, a hook projecting down from the carrier adapted to engage with a hook on the breech of the gun, and a bolt having a projection on its stem engaged in a slot partly inclined of the sliding 30 bar, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of 35 two subscribing witnesses, this 19th day of February, A. D. 1896.

DOUGLAS VICKERS.

Witnesses:

HENRY GLOVER COOLEY,
GEORGE HARMAN.