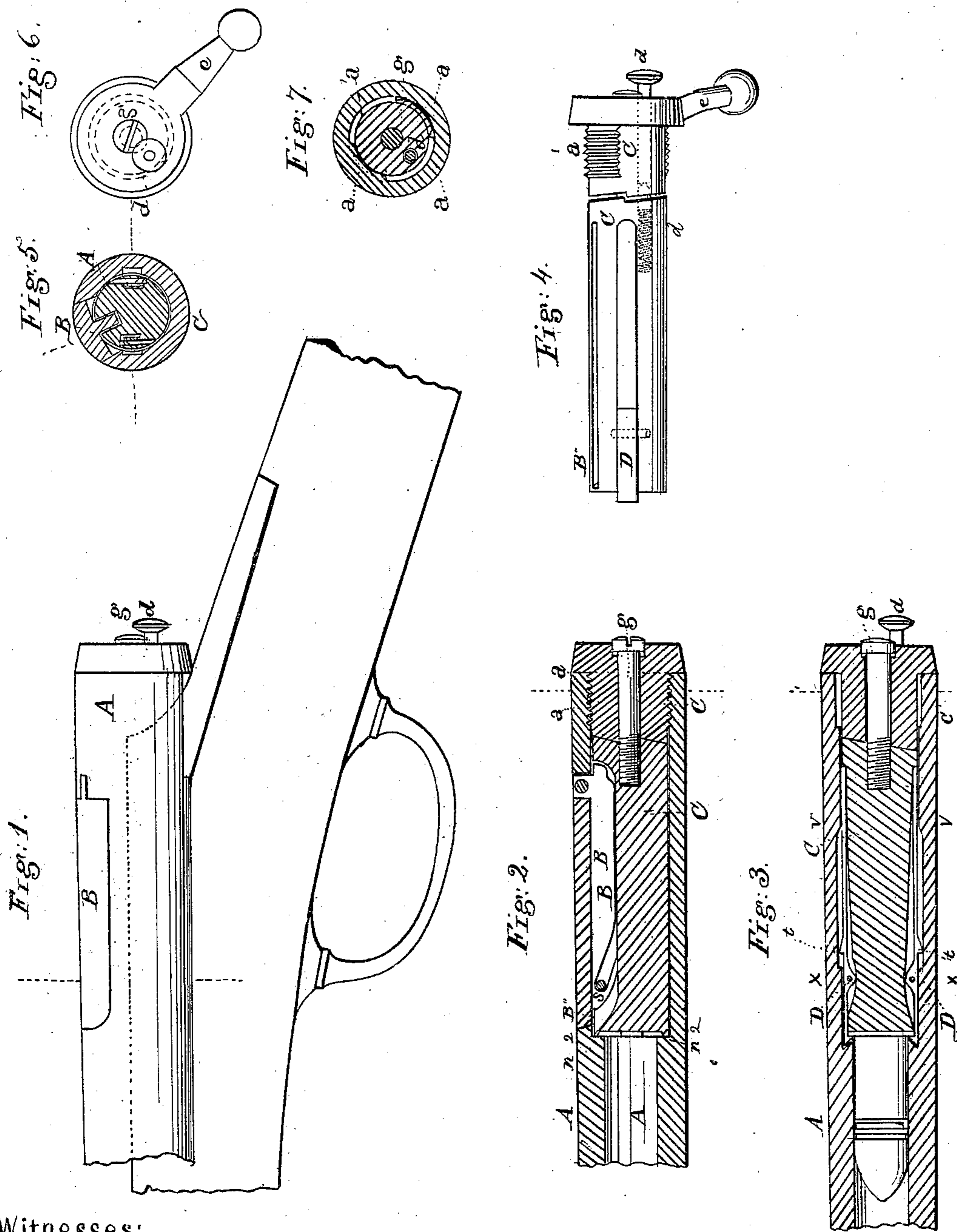


D. F. MELLEN.
Breech-Loading Fire-Arm.

No. 44,545.

Patented Oct. 4, 1864



Witnesses:
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UNITED STATES PATENT OFFICE.

DUSTIN F. MELLEN, OF MANCHESTER, NEW HAMPSHIRE.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 44,545, dated October 4, 1864.

To all whom it may concern:

Be it known that I, DUSTIN F. MELLEN, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented a new and useful Improvement in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is an elevation of a portion of a gun-barrel containing my improvements. Fig. 2 is an elevation of a vertical section of Fig. 1, taken on a longitudinal line through the hinge of the cover B. Fig. 3 is an elevation of a section of Fig. 1, taken in a bent plane, so as to show both the hooks D. Fig. 4 is an elevation of the sliding breech-plug C. Fig. 5 is a vertical sectional view through the breech-plug at points *x x* of Fig. 3. Fig. 6 is an end view of the breech-plug. Fig. 7 is a vertical sectional view of the part *c'* of the breech-plug at the points 1 1.

Similar letters of reference indicate like parts.

A represents a part of the breech of the barrel of a gun, and A' its bore. The bore is enlarged behind the line marked by the figures 2 2, to receive a solid breech-plug, C, which is made to slide in the barrel up to the position shown in the sectional Figs. 2 and 3. An opening is cut in the top of the barrel to the left of a plane passing vertically through its axis, for the purpose of introducing the cartridge into its chamber, and this opening is shown in Fig. 1 as covered by the door B, which is securely hinged, as shown in that figure, and which has a rib, B', on its under side, the continuation of which forms the joint of the cover, and which rib has a hook formed near its end, which engages with a rod, *s*, that lies across a depression, B'', in the breech-plug, which receives the rib B'. This rib sets down into a channel, B'', in the plug, and thus serves the purpose of a guide for the plug in its movements inward and outward. This rib is of such a shape that when the breech-plug is drawn outward it will ride upon the rod *s*, and cause the cover B to open and uncover the opening in the barrel for the purpose of removing the case of an exploded cartridge and

inserting a fresh one. The position of the rod *s*, which is firmly secured in the breech-plug, and the shape of the hook on the rib B', must be such that when the breech-plug is snugly driven home to its seat, the cover B will be drawn down securely into the opening in the barrel, so as there shall not be any leakage.

The breech-plug is made in two sections, C and C', connected together by a screw-bolt, *g*, which takes into a screw-thread cut within the section C, the bolt-hole in section C' being smooth and somewhat larger than the diameter of the screw-bolt, so as to permit section C' to be separated slightly from the section C, as shown in Fig. 4. These sections are joined by a clutch-joint, as clearly shown in Fig. 4. Two sockets are formed in one end of section C to receive spring-bolts *d'*, which should, in their normal position, extend across the joint into the end of the hole of pin *d* in section C', as shown, so as to prevent the rotation of that section. A pin, *d*, with an enlarged head is fixed in a hole which passes through section C' lengthwise at a point equally distant from the center of the axis of the plug, so that one of the sockets in section C will coincide with the hole in section C' when the joint is closed, and the other when it is open. It follows from this that the pin *d* may be pushed inward to drive back one of the spring-bolts *d'* until its point reaches the joint, when the section C' may be rotated by turning its handle *e*. A section of a screw, *a*, is cut upon opposite sides of the part C', and similar sections of a female screw of the same pitch are cut upon the inner periphery of the extreme end of the gun-barrel, the sections being such in width as to allow those on the plug to move between the spaces left between those in the barrel, and vice versa.

I secure the hooks D upon opposite sides of the plug, but not in a line passing through its axis, for the reason that the hook on the hammer side of the barrel is put below that line to make room for the notch in the barrel, through which the hammer reaches the edge of the cartridge, and which is not shown in the drawings. The hooks are received into sockets in the barrel, in which they fit snugly, as seen in Fig. 3, when the plug is driven home. The shanks of the hooks extend along the face of the plug, as shown in that figure, and lie in a cavity or groove of the form there shown,

each having an incline, V, upon which the projections seen on the shanks of the hooks near their fulcrum-pins strike, and the hooks are thereby drawn away from the sides of the plug toward the barrel. The inner end of the plug is reamed out, as seen in Fig. 2, leaving a rim, *n*, to enable the flange of the cartridge containing the fulminating material to lie within the extended rim of the plug, so as to be protected by it on all sides, except at the point where the rim and a solid part of the plug are cut away, (not shown in the drawings,) to allow the hammer to reach the flange of the cartridge. The rim of the plug is also cut away to let the shanks of the hooks coincide with the inner face of the rim of the plug, and thus enable them to embrace the flange of the cartridge snugly.

The operation of these parts is as follows: The spring-bolt *d* having been pushed forward, the section C' is rotated upon its sectional screw-thread, and the sections are thereby unlocked from the bolt *d*', and the joint opened, the rotation being continued until the sectional screw-threads are disengaged from each other, when the socket of one of the spring-bolts again coincides with the hole of the pin *d*, and the sections of the plug become locked in that position, and the plug can be withdrawn, and the breech of the gun thereby opened, as before explained, for the insertion of a cartridge. The cartridge having been inserted, the section C' of the plug is unlocked, and turned, so as it can be moved endwise toward the section C, when the screw-threads become engaged, and the plug is driven home, the hooks embracing the flange of the cartridge, as shown, and the rod S of the plug drawing the cover B close into its opening, when the gun is ready to be fired. The next withdrawal of the plug causes the metallic case of the cartridge to be withdrawn from the bore of the gun by the hooks, which release their grasp when the inclines V come to act upon the projections of the hooks.

A breech-loading gun with one hook for withdrawing the metallic case of the cartridge is described in the patent of John K. Millner,

of February 17, 1863; but it is an imperfect invention, for the reason that the hook sometimes fails to withdraw the case, both because of the manner of its construction, and because it necessarily seizes the flange of the case at a disadvantage. My hooks are differently constructed, and by reason of their number are enabled to seize the case at nearly opposite points of its circumference, and to hold it steadily while it is being drawn from the bore, and to release it suddenly after the plug has completed its movement by reason of the projections *t t* on the spring-shanks of the hooks striking against the inclined faces V of the barrel.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. Making the breech-plug in two sections, substantially as shown—that is to say, connected by an axial screw-bolt, *g*, upon which the rear section rotates, clamped together by the engagement of the sectional screw-thread *a'* on the rear section C' of the plug, with the corresponding thread in the inside of the box, the rear portion being restrained from rotation in either the firing or the loading position by the engagement of one of the spring-pins *d' d'* with the holes in the sectional plug C', from which they are driven, when it is required to withdraw or drive home the breech-plug, by the pin *d*.

2. Securing the cover B of the opening in the breech of the gun by means of its hook and the pin S in the groove of the plug, substantially as shown.

3. The method of operating the cartridge-case-retracting hooks D D by means of their spring-shanks and the inclines *t t* on the back of the hooks, and the inclines V V in the bore, so as by the impingement of the said inclines to throw back the hooks and release the cartridge-case, substantially as shown and described.

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Witnesses:

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