T. YATES.

BREECH LOADING FIREARM.

No. 60,607. Patented Dec. 18, 1866.

Fig. 1.

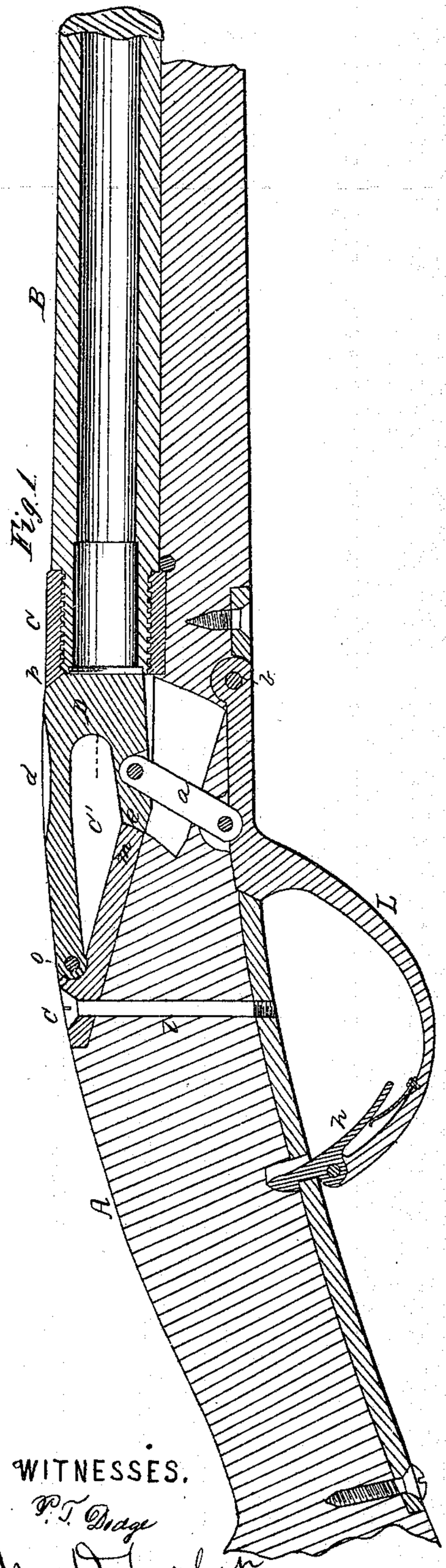


Fig. 2.

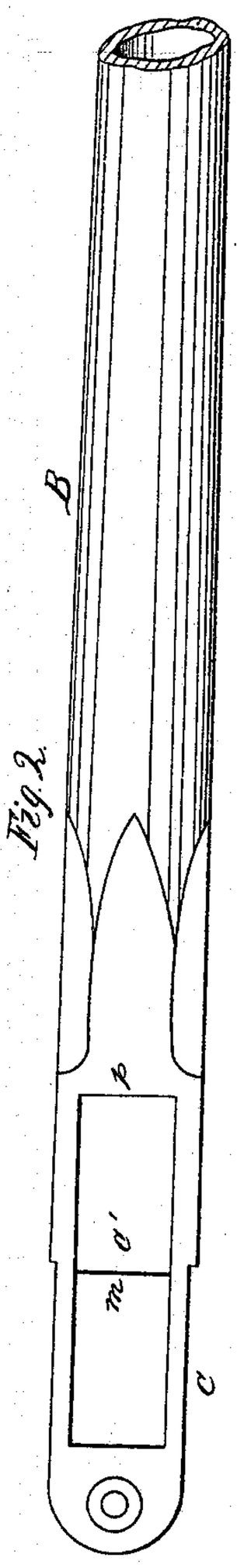
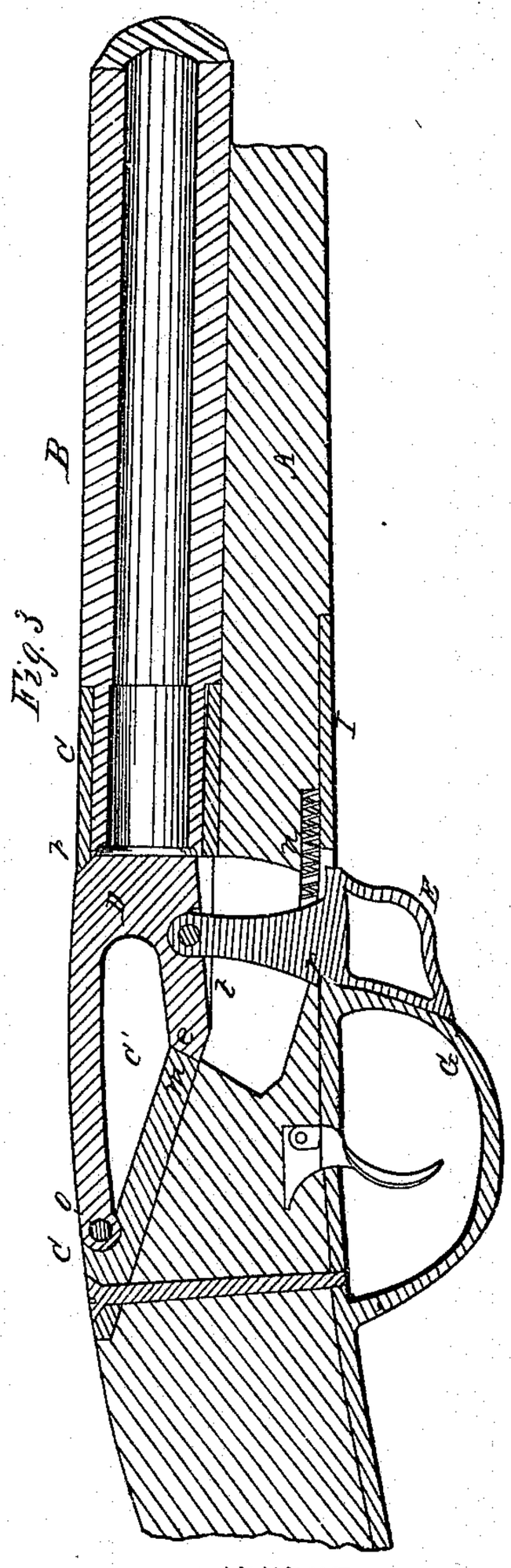


Fig. 3.



WITNESSES.

P. T. Dodge

W. D. Baker

INVENTOR.

Theodore Yates

By W. C. Dodge

Attorney

United States Patent Office.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

THEODORE YATES, OF MILWAUKEE, WISCONSIN.

Letters Patent No. 60,607, *dated December* 18, 1866.

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, THEODORE YATES, of Milwaukee, in the county of Milwaukee, and State of Wisconsin, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

Figure 1 is a longitudinal vertical section.

Figure 2 is a top plan view of the barrel, with my improved breech shown detached from the stock; and

Figure 3 is a longitudinal section, showing a modification of the parts for opening and closing the breech.

My invention consists in a novel methed of constructing the breech, and in a peculiar formation of the breech-pin or block; and also in a novel arrangement of devices for operating the same, whereby the ordinary muzzle-loading arm may be readily converted into a breech-loader, and the same lock, stock, and barrel be retained, with a slight change of the parts.

A represents the stock of the ordinary muzzle-loading arm, as now used, and B represents the barrel. C represents the breech, which, in figs. 1 and 3, is represented as composed of a separate piece screwed on to the rear end of the barrel, and occupying the position of the ordinary breech-pin and tang. This breech-piece is made wedge-shaped, tapering off towards its rear end so as to form a flat piece, through which a screw, *l*, passes to secure it to the stock, similar to the tang or strap of the ordinary breech-pin, as shown in figs. 1 and 3. This breech, C, is made hollow, as represented at C′, leaving its sides solid, and also its bottom, *m*, for about one-half of its length. It has a rectangular opening through its top, from the rear end of the barrel to near its rear end, as shown clearly in fig. 2, this opening terminating at its rear in a transverse socket, as shown in fig. 1, to receive the rear end of the breech-block, D. An opening is also made through its under side, extending from the rear end of the barrel back nearly one-half its length, terminating in the shoulder or abutment *m*, for the lower tang or arm of the breech-block, D, to bear against. If preferred, the breech C may be formed of a portion of the barrel itself, as represented in fig. 2, instead of a separate piece, as above described. In making new guns on this last plan, the barrel will be extended sufficiently to permit of so forming the breech; but in altering the ordinary barrels, this may be done by inserting a rod of the proper size and form to fit the bore, and then forging the rear end of the barrel into the required form to constitute the breech, C, after which the rod may be withdrawn, the object of inserting the rod being simply to preserve the form and size of the bore during the operation of thus forming the breech, C. Having thus constructed the breech, C, I then make the breech-block D, of U shape, as shown in fig. 1. The upper arm of this block, D, is made of proper size to fill the opening in the top of the breech, C, and has its rear end rounded to fit accurately in the socket in the rear portion of said breech, where it is pivoted by a transverse pin, O, as shown in fig. 1. The lower arm of the block D is of proper length to fill the opening in the under side of the breech, and terminates in a shoulder, *e*, fitted to abut and rest firmly against the front edge of the bottom, *m*, of the breech, C, as shown. The front end of this block, D, is made flat, of proper size to close the bore, and stands at right angles thereto when in position for firing, as shown in fig. 1. The upper front corner of the block D is bevelled, as represented in fig. 1 at *p*, the front wall of the upper opening in the breech, C, being bevelled to correspond therewith, as shown. It will be observed that the point *o*, at which the upper arm of the block D rests, is exactly in line with the upper surface of the bore, and that the point *e*, at which the lower arm of said block rests, is exactly in line with the lower surface of the bore, and that thus the strain produced by the explosion of the charge is equally divided between these two points of resistance. At the same time the block D, being pivoted on a line with the upper point of its perpendicular face, permits its front end to drop down, and also to close tight against the rear end of the barrel when raised. The object of bevelling the front upper corner of the block D is twofold: first, it operates as a wedge to force the cartridge into the barrel in case it should not be entirely into its place; and, second, it prevents the premature explosion of the cartridge, which frequently occurs when it is struck by the sharp corner of the block in closing it hastily for firing, when the cartridge happens to protrude slightly at the rear, or is not pushed entirely into its place. The breech and block being thus constructed and united, the latter is connected by a link, *a*, to the lever-guard, L, by which it is operated in the usual manner of arms of this

kind. Instead, however, of changing the ordinary guard in altering guns on my plan, the guard G may be retained, and the block D operated by means of the additional piece E, as shown in fig. 3. This piece, E, is pivoted at *t* to the under side of the block D, and works through a slot formed in the trigger-plate I, as shown. This finger-piece, E, is located immediately in front of the guard G, and has a shoulder, *r*, formed on its rear edge, which is caused to engage upon the upper surface of the plate I, at the rear end of the slot formed therein, a spiral spring, *n*, serving to hold it there and prevent it from becoming unlocked when closed. By pressing forward on the finger-piece E the shoulder or notch *r* is disengaged, when it drops down and opens the breech. The form of the external portion of this piece, E, should be such as to form a continuation, as it were, of the guard G, and not present any projecting point or hook in which any article would be likely to become entangled and thus endanger the accidental unlocking of it. The ordinary stock and lock may be retained, the only changes required being to cut the recess which receives the tang of the usual breech-pin somewhat larger, and of proper form to receive the breech C; and also a suitable opening for the front end of the block D to drop down into, and for the link *a*, or finger-piece E, to work in. Neither the construction nor location of the lock requires to be changed, the point only of the hammer being slightly altered to strike fairly the end of a firing-bolt, to be located at the proper position in the block D. Any suitable style of retractor may be used, and be operated either by the guard L or by the finger-piece E, according as the one or the other may be used. By these means I am enabled to convert the present muzzle-loading arm into a simple and efficient breech-loader at a trifling expense, and in so doing to preserve and utilize nearly all the parts of the old arm, with the addition of but very few new parts, and those of the simplest kind. It is also obvious that new guns may be made on my improved plan with similar facility and advantages.

Having thus described my invention, what I claim, is—

1. I claim the construction of the breech C, having the rectangular opening, with the overhanging shoulder at the top, and having the wall or shoulder *m* for the breech-block to rest against, substantially as described.

2. In combination with the breech C, I claim the block D, having its upper arm pivoted on a line with the upper surface of the bore, and its lower arm abutting against the shoulder *m*, in line with the lower surface of the bore, with its upper front corner bevelled, as shown, said block being arranged to operate as herein set forth.

THEO. YATES.

Witnesses:
W. C. DODGE,
JNO. D. PATTEN.