

J. W. LIVINGSTON.  
Breech-Loading Fire-Arm.

No. 227,907.

Patented May 25, 1880.

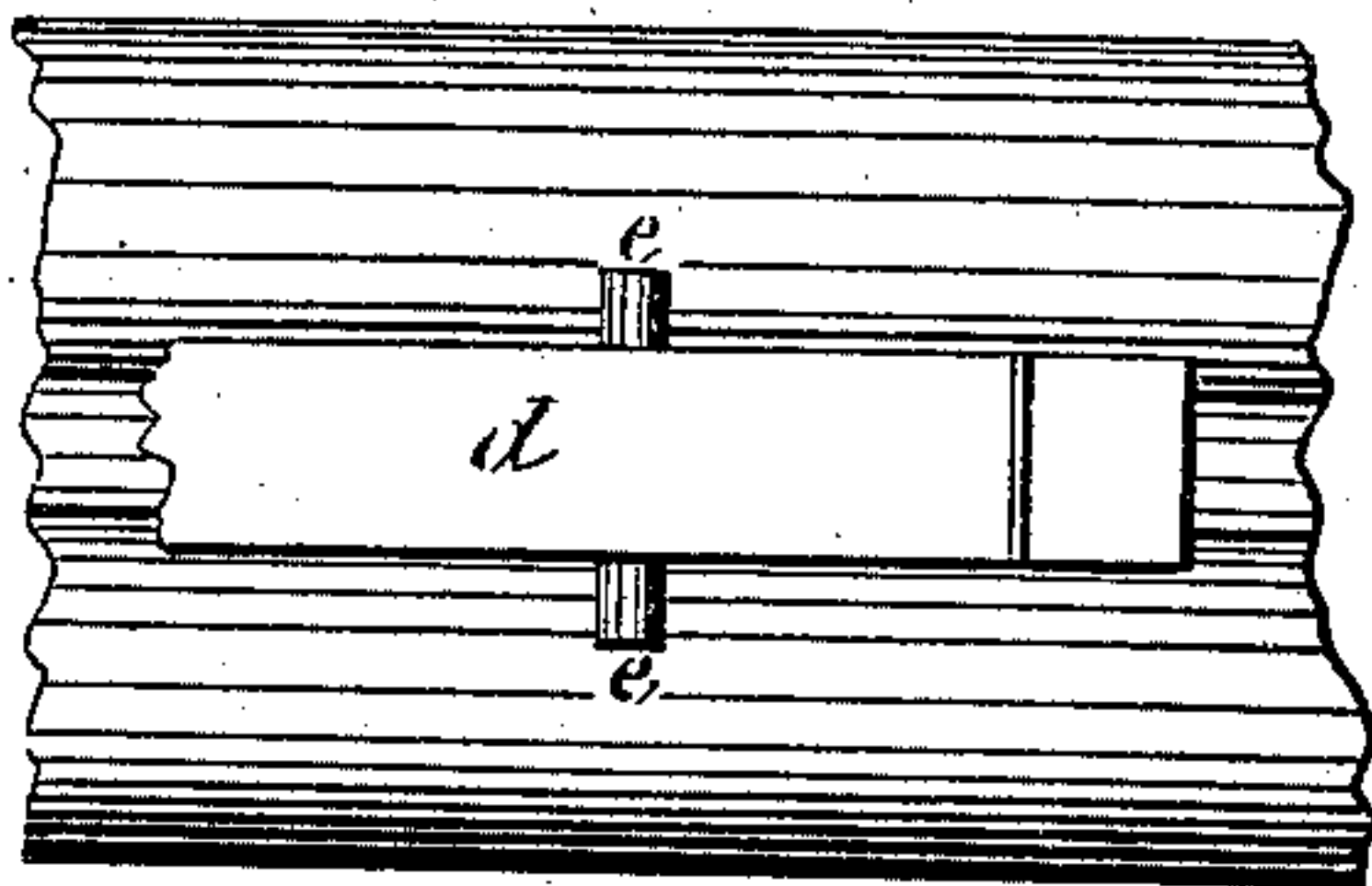


Fig. 3

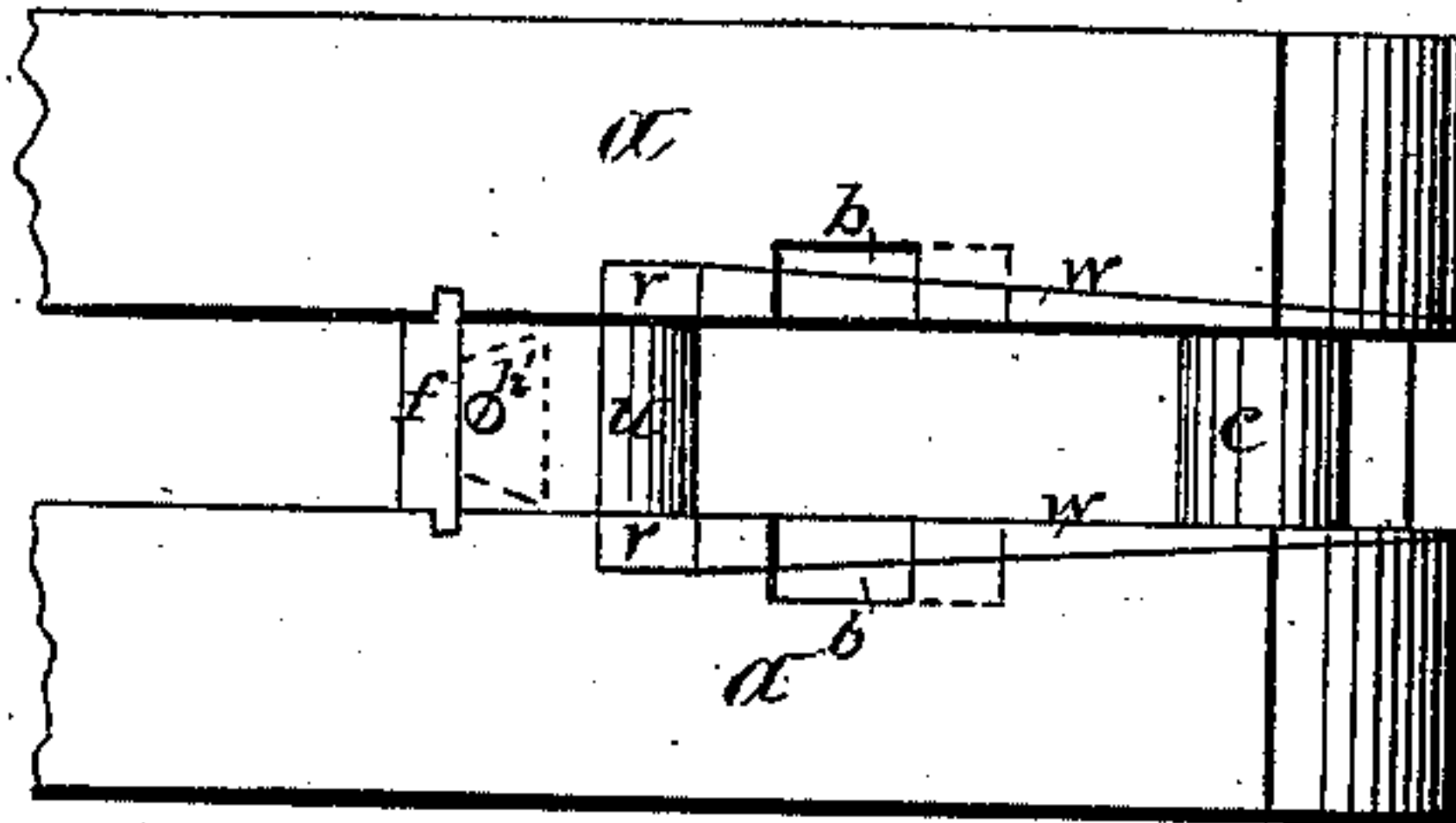


Fig. 2

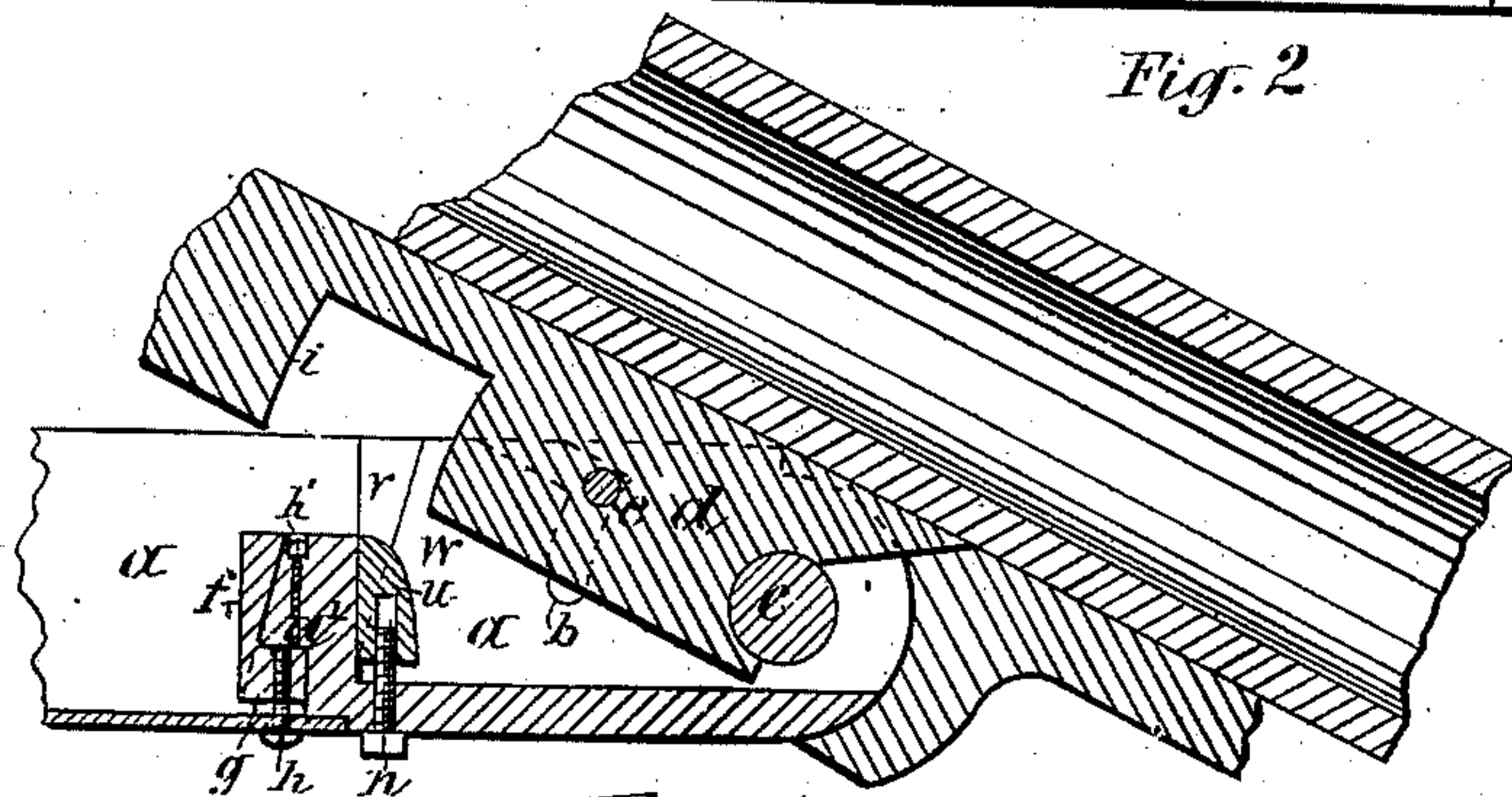


Fig. 1

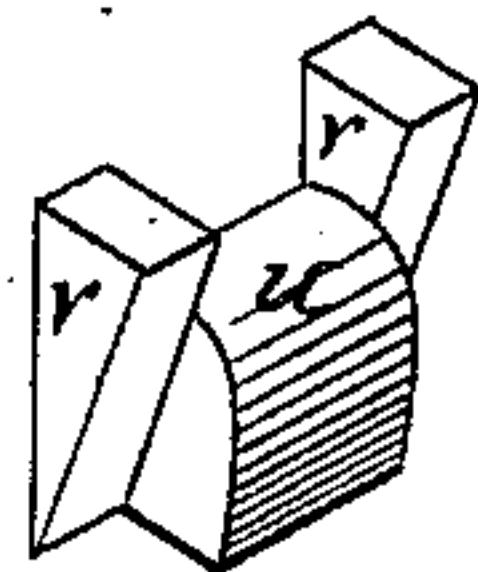


Fig. 4

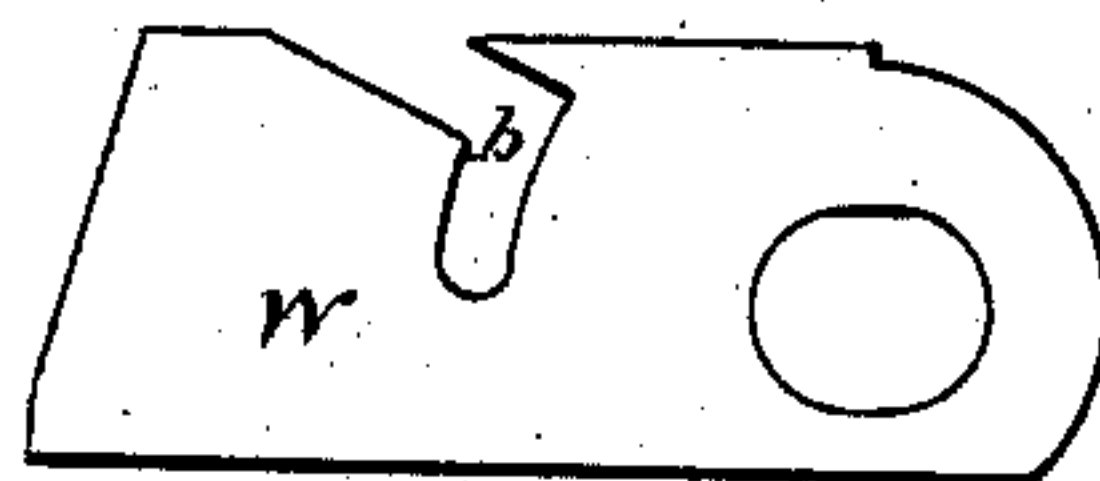


Fig. 5

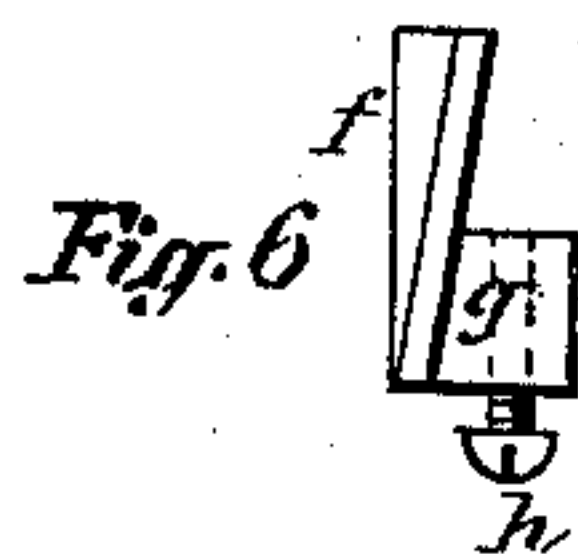


Fig. 6

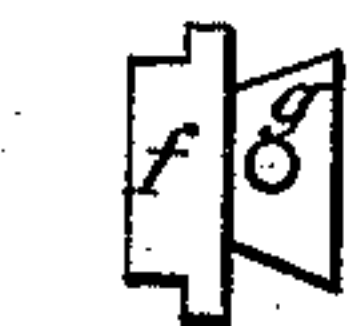


Fig. 7

WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOSEPH W. LIVINGSTON, OF SYRACUSE, NEW YORK.

## BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 227,907, dated May 25, 1880.

Application filed September 29, 1879.

*To all whom it may concern:*

Be it known that I, JOSEPH W. LIVINGSTON, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Breech-Loading Guns, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to that class of breech-loading guns in which the barrels are hinged to the breech by a pin passing transversely through the breech-extension and have a lug or tongue on the under side of the barrels entering a groove or mortise in the said breech-extension.

My improvements consist in the combination, with the groove or mortise of the breech-extension, which receives the lug of the barrels, of wear-plates applied to the sides of said mortise, tapered toward the hinge-pin, and sustained and operated by keys and a set-screw arranged at the rear end thereof, whereby the wear at the sides of the lug is compensated and lateral play of the barrels is effectually prevented.

It also consists in the combination of the lug of the barrels, provided with a removable check-pin extended transversely through the lug and projecting at opposite sides thereof, and a segmental groove intersecting a radial groove in the sides of the mortise of the breech-extension, whereby the hook-shaped recess, usually cut out of the lug, and the consequent weakening of the lug, is obviated and the renewal or repairs of the device greatly facilitated.

It furthermore consists in the combination, with the breech-extension, of a wedge-shaped block applied to the rear of the cross-tie or bridge and sustained and operated by set-screws inserted, respectively, through the top and bottom of the bridge, by means of which the end wear at the rear shoulder of the lug which engages the bridge, as well as the wear between the ends of the barrels and recoil-plate, may be compensated and the joint at the latter point preserved perfectly tight, all constructed and combined substantially as hereinafter more fully described.

The invention is clearly illustrated in the accompanying drawings, wherein Figure 1 is

a longitudinal vertical section of the breech-extension and its connection with the barrels; Fig. 2, a plan view of the breech-extension; Fig. 3, an inverted view of the lug of the barrels, showing the projecting check-pin; Fig. 4, an isometric view of the adjusting-block used in connection with the compensating side plates; Fig. 5, the compensating side plate detached; and Figs. 6 and 7 are side and plan views, respectively, of the adjustable compensating-block applied to the rear of the cross-tie or bridge of the breech-extension.

Similar letters of reference indicate corresponding parts in all the figures.

*a* denotes the breech-extension, having the usual longitudinal groove or mortise for the reception of the tongue or so-called lug *d* on the under side of the barrels. The mortise aforesaid I make of a gradually-increasing width from the hinge-pin rearward, and to the sides thereof I fit wedge-shaped plates *w*, tapered correspondingly toward the hinge-pin *e*, and having their rear end inclined to fit against wedges *v*, connected to the sides of the block *u*, which is of the same width as the lug *d*, and beveled reverse or suitably shaped to form an abutment for the end of said lug. The forward-projecting part thereof, bearing against the sides of the wear-plates *w*, serves to sustain the same against the sides of the mortise. The block *u* rests against the cross-tie or bridge *a'*, and by means of a set-screw, *n*, inserted from the under side of the breech-extension and entering the said block, the latter, with its wedges or keys *v*, is drawn down, thereby causing the keys to force the plates *w* toward the hinge-pin *e*, and compensating for the wear at the sides of the lug *d*. The eye in the said plates through which the hinge-pin passes is elongated to admit of the aforesaid movement. The plates *w* are restrained from lifting out of the mortise of the breech-extension by the keys *v* and the hinge-pin *e*. I provide the said plates with a segmental slot, *b*, in the form of an arc described from the center of the hinge-pin, which slot intersects a radial slot extended rearward therefrom and out through the top edge of the plate. Transversely through the lug *d*, I insert a pin, *c*, of sufficient length to project at



either side thereof, and in such relative position as to enter the slot *b* in the plate *w*. The slot *b* is of a length to allow the necessary play to the pin *c* in tilting the barrels, which motion is checked by the collision of the pin with the upper terminus of the groove *b*. The radial groove allows the pin to pass out of the plate whenever it is desired to disconnect the barrels from the breech. The pin *c*, being removable from the lug *d*, admits of a ready renewal or repair of same when required.

It is obvious that the wedge-plates *w* can be applied to the sides of the lug *d*, and a segmental groove with a radial outlet for the pin *c* cut in the sides of the mortise of the breech-extension for the attainment of the same object—*i. e.*, compensating for the wear at the sides of the lug *d* and preventing lateral play of the barrels.

To compensate for the wear on the shoulder *i* of the lug *d*, and secure a close joint between the end of the barrels and the recoil-plate, I provide an adjustable compensating-block in the form of a wedge, *f*, as best seen in Figs. 6 and 7 of the drawings, which wedge is fitted into a corresponding recess in the rear of the cross-tie or bridge *a'* of the breech-extension, and has a tongue on either side sliding in grooves in the sides of the recess. From the back of the lower portion of the wedge *f* projects a dovetail block, *g*, which slides in a dovetail recess in the base of the bridge *a'*. The adjustment is accomplished by a set-screw, *h*, inserted from the under side of the breech and into the block *g*, and by another set-screw, *h'*, inserted in the top of the bridge *a'* and bearing on top of the aforesaid block. The screw *h* draws the block, with its wedges, down the requisite distance, and the same is followed by the upper screw, *h'*, thereby firmly holding the device in its desired position.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the lug *d*, the breech-extension *a*, having the lug-receiving mortise tapering from the rear toward the hinge-pin, and the side wear-plates, *w*, tapered correspondingly, and provided with means for forcing them forward, substantially as and for the purpose set forth.

2. In combination with the lug *d*, breech-extension *a*, and bridge *a'*, the wedge-plates *w*, sustained and operated by the wedge-block *u* and screw *n*, substantially as described.

3. In combination with the breech-extension *a* and lug *d*, the block *u*, provided at its sides with wedges *v v*, and the wedge-plates *w*, having an elongated eye for the hinge-pin and an inclined rear edge, substantially in the manner described and shown, for the purpose set forth.

4. In combination with the breech-extension *a*, provided with the segmental groove *b*, and a radial groove intersecting same, the removable pin *c*, inserted transversely through the lug *d*, substantially as described and shown, for the purpose specified.

5. In combination with the lug *d*, breech-extension *a*, and bridge *a'*, the wedge *f*, provided with the dovetail block *g*, fitted in a corresponding recess in the rear of the bridge, and adjusted by set-screws *h h'* engaging opposite ends of the block *g*, substantially as described and shown.

In testimony whereof I have signed my name in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga and State of New York, this 21st day of May, 1879.

JOSEPH W. LIVINGSTON. [L. S.]

Witnesses:

JOHN A. NICHOLS,  
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