

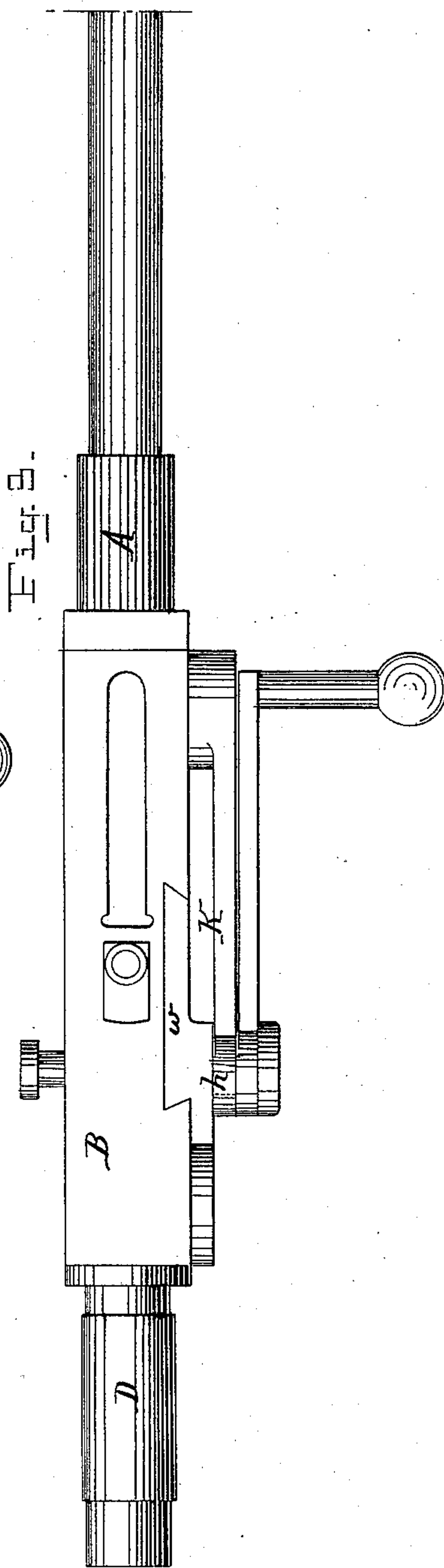
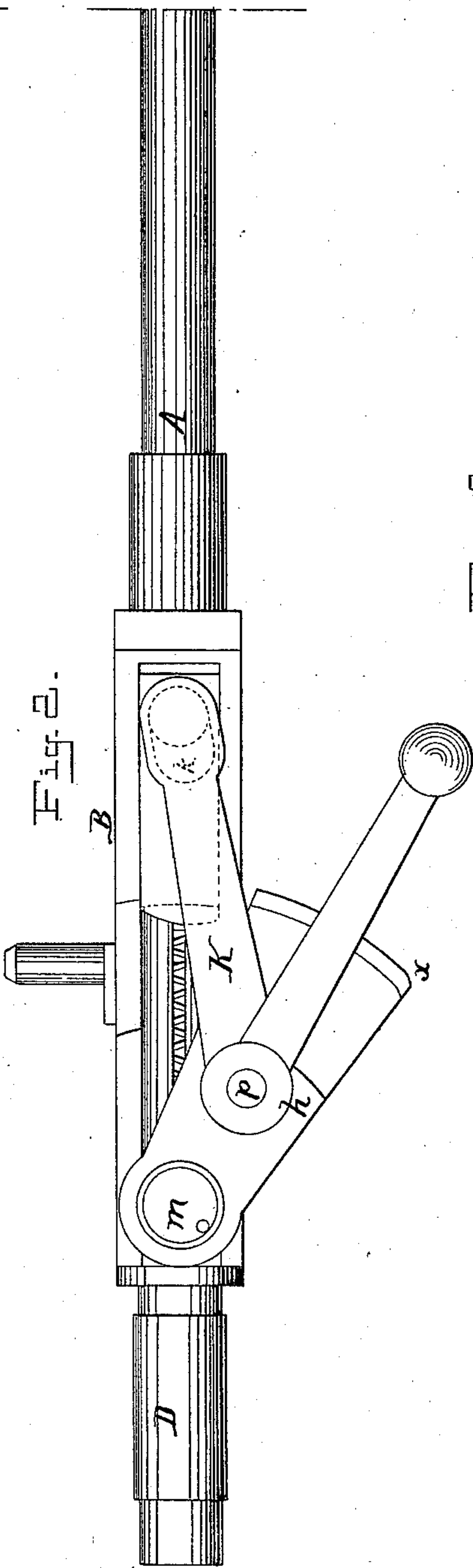
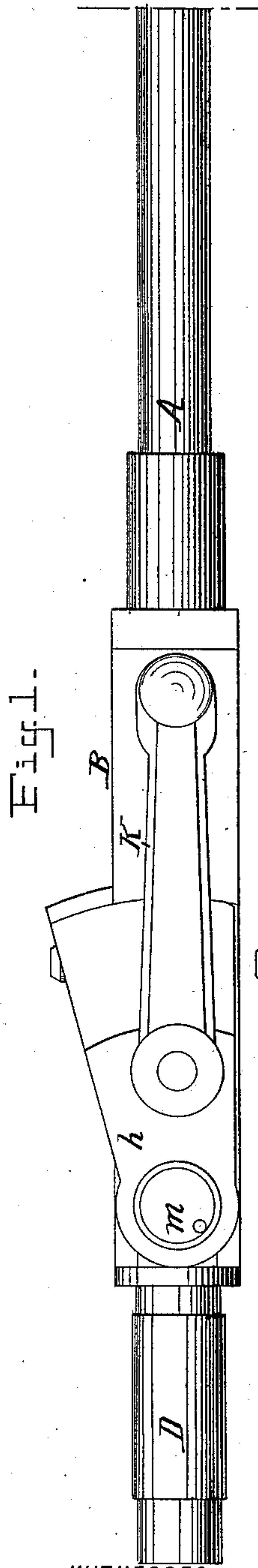
(No Model.)

2 Sheets—Sheet 1.

W. D. FORBES.
BREECH LOADING BOLT GUN.

No. 466,779.

Patented Jan. 12, 1892.



WITNESSES:

George Baumann
John Revell

INVENTOR

William D. Forbes
BY
Horner and Horner
his ATTORNEYS

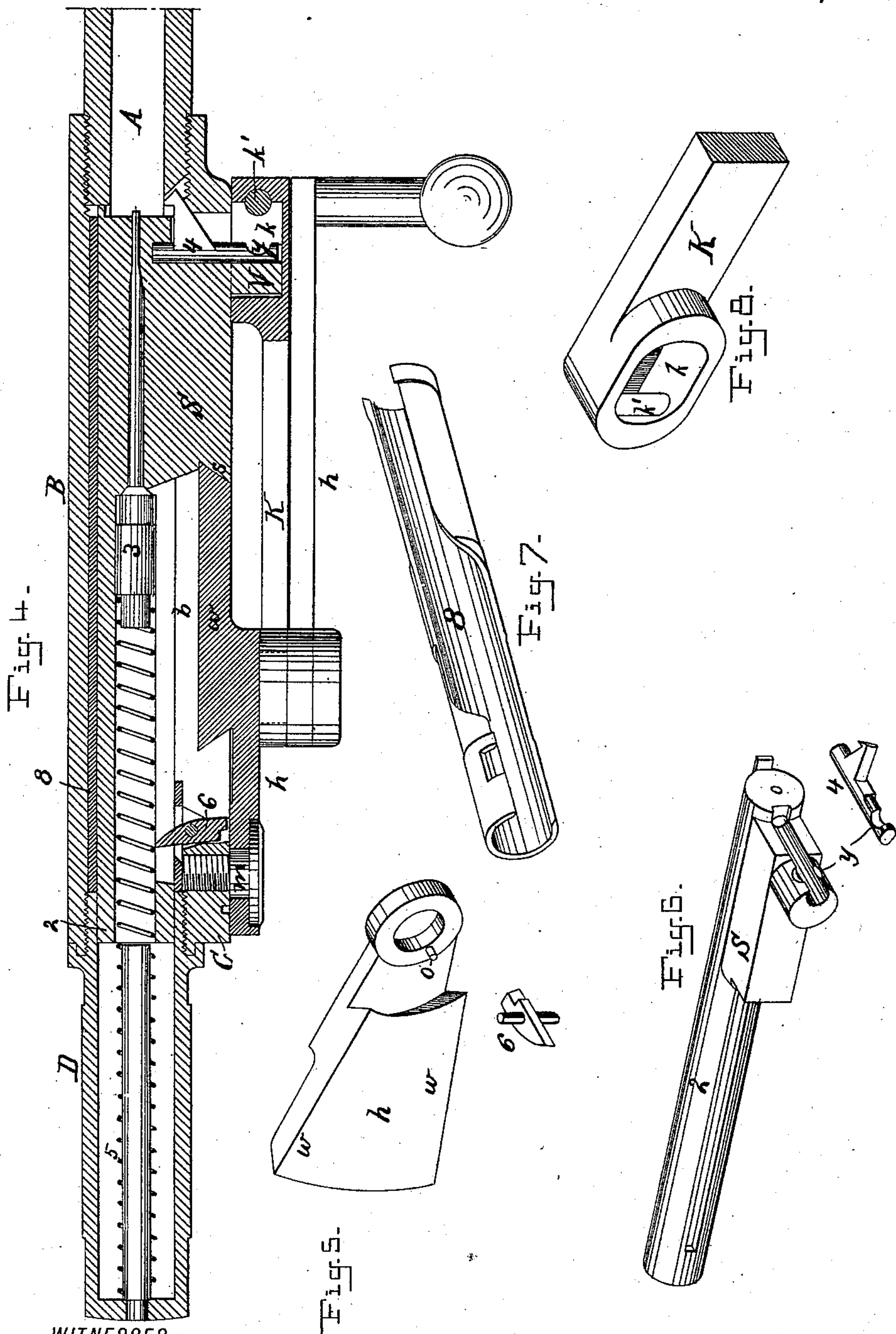
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UNITED STATES PATENT OFFICE.

WILLIAM D. FORBES, OF MORRISTOWN, NEW JERSEY.

BREECH-LOADING BOLT-GUN.

SPECIFICATION forming part of Letters Patent No. 466,779, dated January 12, 1892.

Application filed December 30, 1890. Serial No. 376,286. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. FORBES, a citizen of the United States, and a resident of Morristown, Morris county, New Jersey, have invented Improvements in Rapid-Firing Arms, (Case B,) of which the following is a specification.

My present improvements in rapid-firing breech-loading arms have more particularly reference to the construction and combination of devices for imparting motion to and locking the breech-bolt and for locking the extractor upon the cartridge-shell in withdrawing the latter.

In the accompanying drawings, Figure 1 is a side view of my improved rapid-firing breech-loading arm with part of the barrel cut off. Fig. 2 is a similar side view showing the rotating piece with the locking-segment, the connecting-rod, and the breech-bolt in different positions from those in which they appear in Fig. 1. Fig. 3 is a plan view. Fig. 4 is a sectional plan view. Fig. 5 is a perspective view illustrating the part of the handled rotating piece with the locking-segment and with the trigger, these parts being detached from their surroundings. Fig. 6 is a perspective view of the breech-bolt and extractor detached. Fig. 7 is a perspective view of the roller-gate, and Fig. 8 is a perspective view of that end of the connecting-rod which connects with the breech-bolt.

The barrel A is screwed into the frame or receiver B, which has on the other end the cap-piece D, containing the spring 5 to act upon the firing-pin 3, which in turn is contained within the reciprocating breech-bolt 2. The latter carries at its front end the rigid and springless but laterally-moving cartridge-extractor 4. The handled rotating piece *h*, which may be termed the "rotating operating-handle," is mounted on the pivot-pin *m* of the detachable part of the receiver, which I term the "pin-slide" C, this pivot-pin being substantially at right angles to the axis of the bolt. To this pin-slide is also pivoted the trigger 6, engaging with the firing-pin 3 when the latter is drawn back with the bolt, and this trigger is acted upon to release the firing-pin by means of a projection *o*, Fig. 5, carried by the rotary handle *h*.

To impart the necessary linear reciprocating

motion to the sliding breech-bolt 2, I use a connecting-rod K, connected to a crank-pin *p* on the rotary handle and at the opposite end connected with the bolt 2, but with intermediate lost motion. For this purpose the outer end of the connecting-rod K has an elongated slot or recess *k*, within which is contained the laterally-projecting lug V upon the bolt, the slot being in the present instance about twice as long as the diameter of the lug V. The object of this lost motion is to enable the bolt to remain in its forward locked position, in which it is held by the locking-segment *w* on the handle during that part of the revolution of the rotating piece or handle during which this locking-segment is in engagement with the locking-bolt.

For the purpose of locking the cartridge-extractor 4 upon the rim of the cartridge during the backward movement of the breech-bolt a notch *y* is formed in the edge of the extended arm of the extractor, and corresponding notches are formed on the front side of the lug V of the bolt, while a pin or projection *k'*, carried by the connecting-rod K within the slot *k*, is adapted to enter these notches in the lug V of the bolt and in the cartridge-extractor to prevent lateral movement of the latter when the connecting-rod is drawing the breech-bolt back again.

In an application for a patent filed by me December 30, 1890, Serial No. 376,285, I have shown a fire-arm with a rotary handle *h*, carrying a dovetailed segment *w* to engage with dovetailed notches or recesses in the side of the frame or receiver to lock the breech-bolt to the frame through the lug *v* when the breech-bolt was closed. In my present invention I so construct the breech-bolt that the locking-segment *w* will engage directly with the breech-bolt as well as the frame. For this purpose a shoulder S is formed upon the bolt to project through the side opening *b* of the frame or receiver, and the rear edge *s* of this shoulder is beveled to correspond with the bevel on the forward edge on the locking-segment and the incline of the dovetailed notches in the frame. The connecting-rod K cannot carry the bolt quick enough to the end of its forward motion to avoid the contact of the segment *h* and the shoulder S. So

the advance edge of the rotating segment at α , Fig. 2, is made on a somewhat smaller curve than the rest of the locking-edge of the segment to form a cam-like advance edge. As the segment enters the notches in the frame or receiver this cam-edge α comes into contact with the rear edge s of the shoulder S of the breech-bolt and pushes the latter home, or to its extreme forward position, and holds it there locked by the engagement of the locking-segment w with the notches in the frame and with the bolt and until the rotary handle, as it is turned, carries the segment out of engagement with the breech-bolt.

The operation of my fire-arm will be readily understood without further explanation.

I do not herein claim the general features of construction, as they form the subject of my above-mentioned application for patent, Serial No. 376,285, for a fire-arm, on which the fire-arm of the present invention is an improvement.

I claim as my invention—

1. The combination of the receiver or frame of the breech-loading fire-arm and its breech-bolt with a rotary handle having a crank-pin and mounted on a pivot at right angles to the axis of the bolt, and a connecting-rod connecting the breech-bolt with a crank-pin on the rotary handle, substantially as described.

2. In a breech-loading fire-arm, the combination of the receiver or frame and breech-bolt with a rotary handle having a crank pin, and a connecting-rod connecting the said crank-pin of the rotary handle with the breech-bolt to operate the latter, with a lost motion in the connecting-rod, as and for the purpose set forth.

3. In a breech-loading fire-arm, the combination of the frame or receiver and breech-bolt with a rotary handle having a crank-pin, a connecting-rod connecting the crank-pin with the breech-bolt, a laterally-moving cartridge-extractor, and a device carried by the connecting-rod to lock the extractor upon the cartridge-shell during the rearward movement of the breech-bolt.

4. In a breech-loading fire-arm, the combination of the frame or receiver and breech-bolt having a laterally-projecting lug with a rotary handle having a crank-pin, and a connecting-rod pivoted to the latter and having an elongated slot engaging with the lug on the breech-bolt, substantially as and for the purpose set forth.

5. In a breech-loading fire-arm, the combination of the frame or receiver and breech-bolt having a notched laterally-projecting lug and a notched cartridge-extractor carried thereby with a rotary handle having a crank-pin, a connecting-rod pivoted at one end to the crank-pin and having at the other end an elongated slot to engage with the lug, and a projection to engage with the notches on the lug and extractor, substantially as set forth.

6. In a breech-loading fire-arm, the combination of a frame or receiver and breech-bolt with a rotary operating-handle for the breech-bolt, and a locking-segment carried by the rotary handle and engaging with both the breech-bolt and the frame or receiver to lock the bolt in its closed position.

7. In a breech-loading fire-arm, the combination of the frame or receiver and a breech-bolt having a laterally-projecting shoulder with a rotary handle carrying a locking-segment to engage with the shoulder on the bolt and with notches on the frame or receiver to lock the bolt in its closed position, substantially as described.

8. In a breech-loading fire-arm, the combination of the frame or receiver and breech-bolt with an operating-handle for the latter, having a crank-pin and carrying a locking-segment to lock the bolt to the frame, and a connecting-rod connecting the crank-pin on the rotating handle with the breech-bolt, with a lost motion in the connecting-rod, substantially as and for the purposes described.

9. In a breech-loading fire-arm, the combination of the frame or receiver having notches on the edge and a breech-bolt having a laterally-projecting shoulder with a rotary operating-handle for the breech-bolt to impart a reciprocating motion to the latter, the said handle having a dovetailed locking-segment to engage with the shoulder on the bolt and notches on the frame, the forward acting edge of the locking-segment being made cam-like to complete the forward movement of the breech-bolt, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM D. FORBES.

Witnesses:

EDITH J. GRISWOLD,
JOHN REVELL.