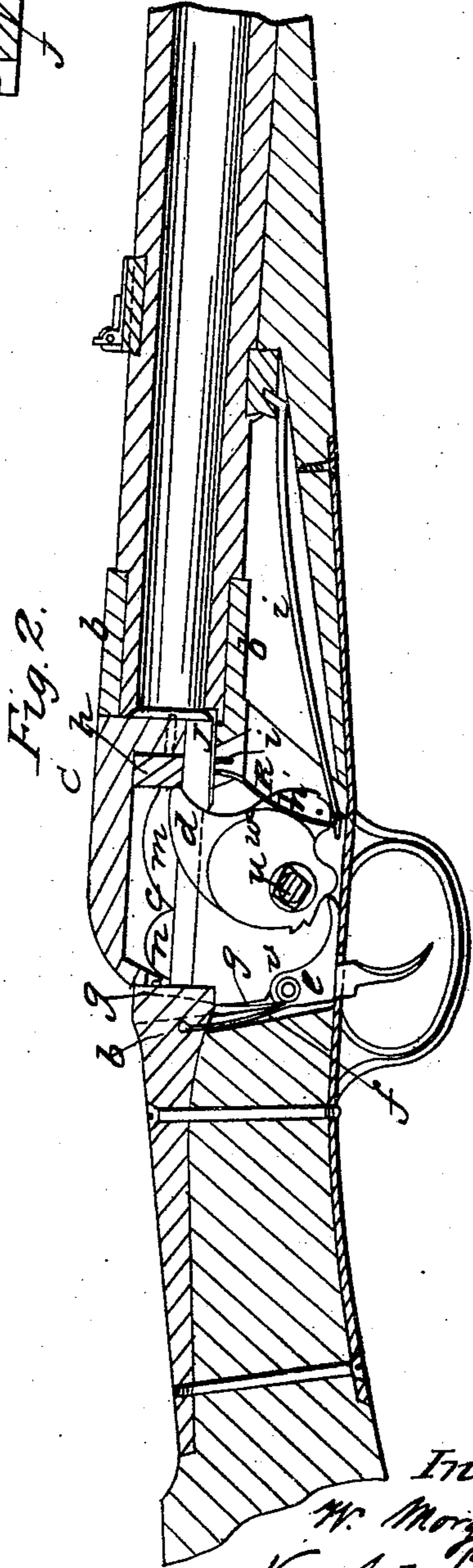
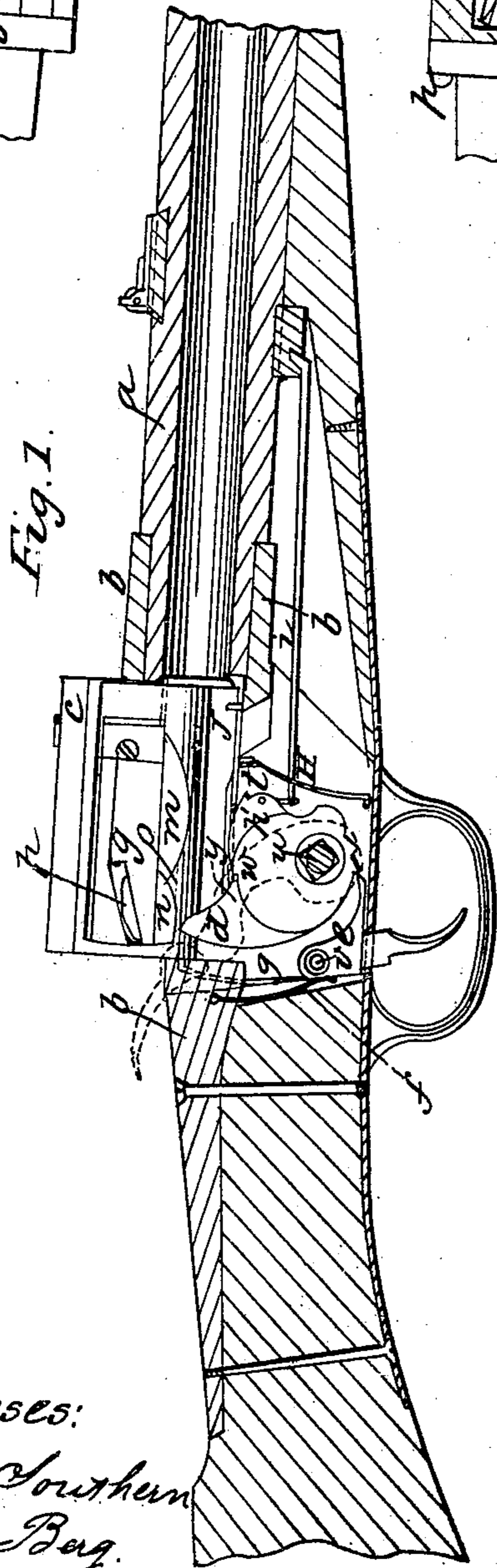
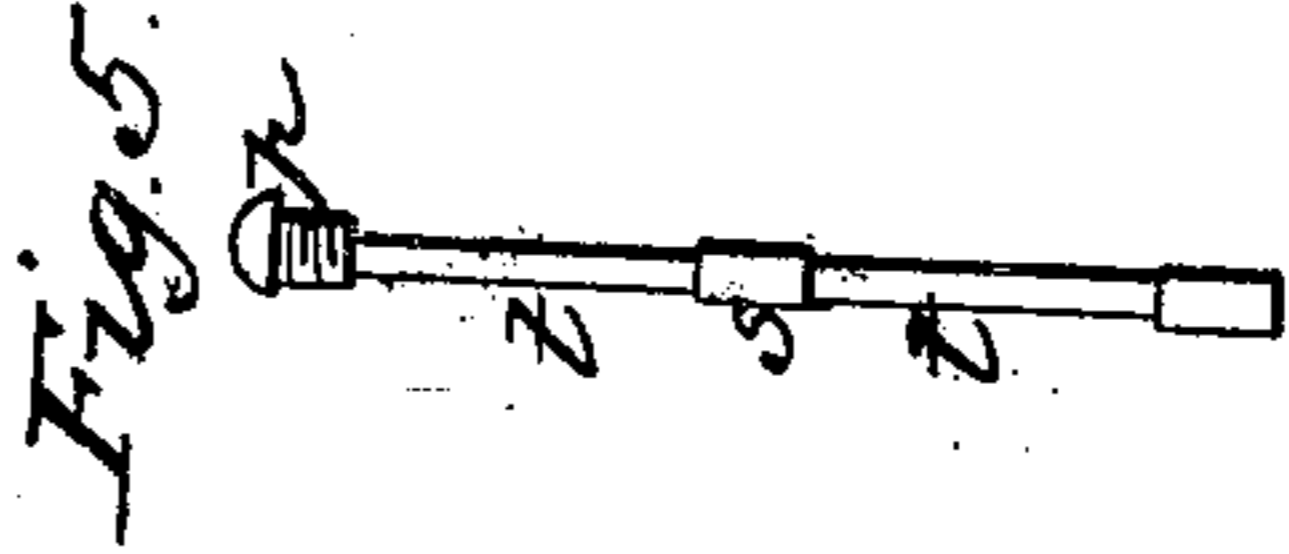
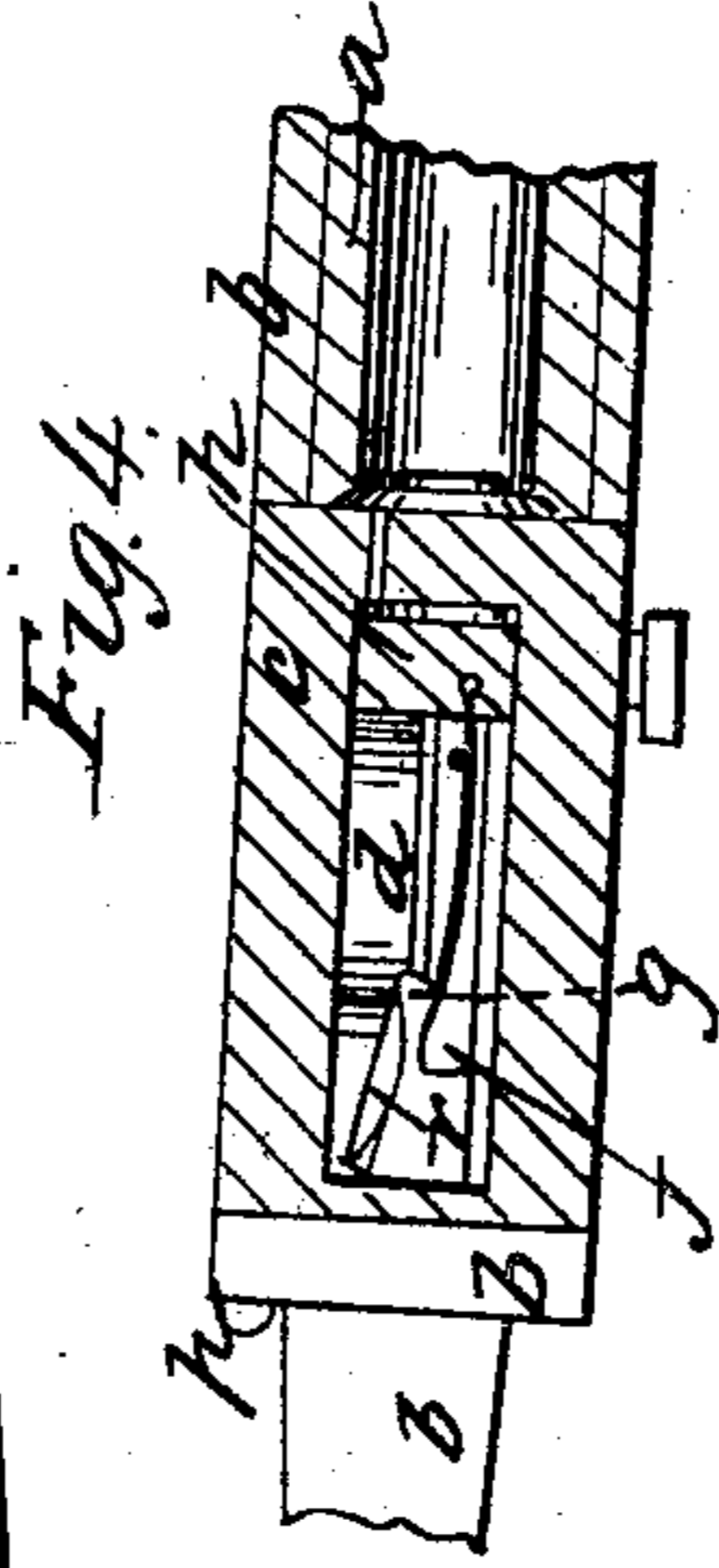
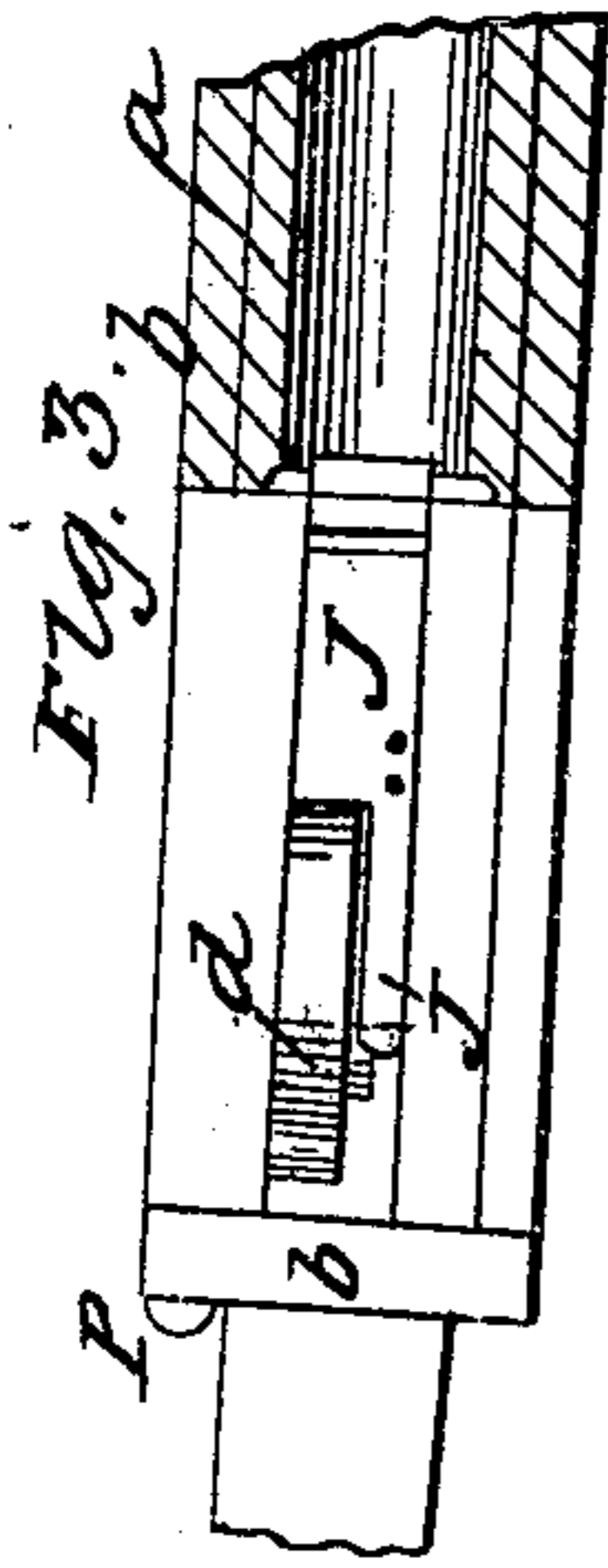


W. MORGENSTERN.  
Breech Loading Fire Arm.

No. 74,712.

Patented Feb. 18, 1868



Witnesses:  
Geo. P. Southern  
Gustav Berg.

Inventor:  
W. Morgenstern  
per  
Van Santvoord & Hauff  
Attys.

# United States Patent Office.

WILLIAM MORGENSTERN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR  
TO ERNST VON JEINSEN, OF NEW YORK, N. Y.

Letters Patent No. 74,712, dated February 18, 1868.

## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

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, WILLIAM MORGENSTERN, of the city of Philadelphia, in the county of Philadelphia, in the State of Pennsylvania, 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 those skilled in the art to make and use the same; reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 is an axial section of a breech-loading fire-arm, made according to my invention, the breech-block having been thrown up and the breech opened.

Figure 2 is a like section showing the breech closed.

Figure 3 is a plan view of the interior of the receiver as it appears when the breech-block is up.

Figure 4 is a horizontal section, the breech-block being down in the position occupied by it when it closes the breech.

Figure 5 is a detailed view of the pin *s*, whose head, *P*, is seen in fig. 3.

Similar letters indicate corresponding parts.

The letter *a* designates the barrel of the gun, and *b* designates the receiver which connects the barrel and stock to each other. The top of the receiver has an opening which extends across it, which opening receives the breech-piece *c*. Said breech-piece is hinged on one of its sides to the receiver by means of a pin, *s*, which is reduced in its diameter at the places marked *t t*, so as to diminish the wearing-surface and obviate the liability of the pin to stick fast by reason of rust, by reducing the surface contact of the said hinge-pin, and thereby facilitate the removal of the pin when the gun is to be taken apart. The sides of the receiver are cut down at the place of the opening sufficiently to receive the breech-block, which, when it is down in its place, fills the opening so that its outer surface coincides with the outer surface of the receiver. The ends of the breech-block are square, as are also the ends of the opening in the receiver, and consequently the rear end of the breech-block has a firm recoil bearing in a direct line with the bore of the gun. The breech-block has on its lower side a hollow space, which receives the firing-pin *h*. From the rear side of the firing-pin extends a spring-arm, whose free end is widened into a block, *q*, of peculiar form, as seen in figs. 1 and 4, its forward end having a shoulder, against which the hammer *d* strikes in cocking, so as to draw back the firing-pin within the wall of the breech-block, and start and raise the breech-block a little distance. The spring-block *q* extends backwards to the rear of the breech-block, at the same time approaching its hinged side. The adjacent side of block *q* is curved, as at *r*, opposite to a hollow curve, *n*, formed on the inside of the breech-block. The forward portion of the hinged side of the breech-block has also a concavity or hollow curve, *m*, which is separated from the other, *n*, by an angle, *O*, which occurs about opposite the shoulder of the spring-block *q*. The lock is contained in the receiver beneath the breech-block, as seen in the drawing. The letter *d* designates the hammer and tumbler, made in one piece, which turns on a pin, *u*, that extends through the sides of the receiver, and carries at one end, outside of the receiver, the thumb-piece, (seen in red outline in fig. 1,) by which the hammer is cocked. The main-spring *i* is connected with the front part of the hammer by a swivel-hook, and said spring extends forward beneath the breech part of the barrel, as is shown clearly in the drawing. The letter *e* designates the sere which is placed behind the tumbler, and engages notches thereon in the usual way. The sere turns on a pin, *v*, and is forced towards the tumbler by the sere-spring *f*. From the upper part of the sere an arm, *g*, which is preferably rigid, extends upwards into a slot or opening made in the back part of the receiver. The dotted outline in figs. 1 and 2 shows the arm in the said opening. The upper free end of said arm *g* is provided with a hook or projection, which extends in a forward direction, so that it can engage the breech-block *c* and lock it in the receiver at certain times, as seen in fig. 2, the projecting end of the arm entering a horizontal opening or notch made in the rear end of the breech-block, as clearly shown in that figure. The times when the breech-block is thus locked are when the sere is drawn down by the trigger in the act of firing, when the said arm is thrown forward into the notch of the breech-block. When the sere is in the position required to bring the hammer to full cock, the arm *g* is thrown back from the breech-block, and the latter is then free to be swung outwards from the receiver. The letter *j* designates the shell-extractor, which slides on a shelf provided for it in

the receiver, a little below the level of the bottom of the bore of the barrel. The forward end of the extractor is formed with a right-angled edge, curved to fit the shell, which edge is allowed to come forward of the place occupied by the rim of the cartridge, by reason of a cut made for that purpose in the breech of the barrel, as shown in figs. 1 and 4. The rear end of the extractor extends alongside of the hammer, over a curved shoulder, *h'*, formed on the side of said hammer, as illustrated in the drawing, and the extractor is started and drawn away from the breech a sufficient distance to disengage and start the shell, in the operation of cocking the hammer after firing, by means of a hook, *W*, formed on said shoulder, which hook engages a reverse hook, *y*, on the end of the extractor. The completion of the backward movement of the extractor is effected by a spring, *k*, whose free end engages the under side of the extractor in a notch, *l*, formed, in this example, by two pins, between which the free end of said spring enters loosely or without being fastened. The bottom or foot of the forward pin *l* and the end of spring *k* are bevelled in opposite directions, and they are so constructed in relation to each other that when the shell-extractor is forward at its place in the breech, the spring is bent in the same direction by the pins until the bevelled end of the spring rests on the bevelled bottom or foot of the said pin, in which position the spring does not exert any force to draw the extractor forward, but when the latter has been started by the hammer-hook *W*, the end of the spring enters the notch formed by the pins, and immediately exerts its force to draw the extractor further away from the breech. The small end or needle of the firing-pin is, in this example, placed in such a position as to strike the cartridge on its circumference, but it can be, if desired, so placed as to strike the centre of the cartridge, or wherever else the fulminating-material may be located. The act of closing the breech by shutting down the breech-block will bring the hammer to half-cock or to full-cock, according to the position of the notches on the tumbler, because the swell of the curved part *n*, towards the angle or point *o*, has a tendency to drive the hammer backwards, in order to allow the breech-block to shut, the curved side *r* of the spring-block allowing the hammer to pass and to force the said spring-block *q* to one side far enough for the purpose. In this example the closing of the breech-block forces the hammer backwards past the position of full-cock, and the hammer, as soon as the breech-block is shut, is drawn forwards by the main-spring *i*, so that the nose of the hammer is alongside the angle or point *O*.

On firing the gun the hammer passes between the curved side of the breech-block and the spring-block *q* without interference or hindrance, because at this time the breech-block is shut down squarely, and the hammer has an uninterrupted passage between these parts. On pulling back the hammer in cocking it, the nose of the hammer strikes against the shoulder of the spring-block, which is thereby pushed backwards until its rear end strikes the rear wall of the breech-block, when said spring-block becomes stationary, and the further backward movement of the hammer, by pressing against said shoulder, forces the breech-block a little distance upwards, and causes it to turn sufficiently to bring the angle *O* in the path of the hammer, when the latter, continuing to move backwards, comes against the curved part *m*, and throws the breech-block outwards on its hinge to the position seen in fig. 1. In order to fire the gun the breech-block must be entirely down in its place, and if it is raised high enough above its place in the receiver to bring the angle *O* before the hammer, any forward movement of the latter causes it to press against the curved part *n* and force the breech-block up so that the hammer cannot reach the firing-pin. The curved parts *m* and *n*, before and behind the angular point *O*, allow the hammer to act upon the said point, and to operate the breech-block with diminished friction. The breech-block, after it has been shut down, is prevented from rising from the receiver, and is securely held down by the combined action of the hammer and the angular point *O*, when the hammer is at full or half-cock, and by the hammer and the straight portion of the said breech-block, which is forward of the curve or hollowed part *m*, when the hammer is down after firing. This result is obtained by the position of the hammer, in the first instance, alongside the point *o*, which point comes down so low at the side of the hammer as to prevent the breech-block from turning over or past the nose of the hammer; and in the second instance, by the position of the hammer alongside the forward part of the interior of the breech-block, where the curve *m* is so slight that there is not room for the breech-block to turn over or past the nose of the hammer. When the hammer is moving forwards in the act of firing, the breech-block is locked by the arm *g* of the sere, as before explained.

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

1. The angular point *o* in the interior of the breech-block, in combination with the hammer *d*, substantially as described.
2. I also claim the spring-block *q*, in combination with the hammer *d*, substantially as described.
3. I also claim the hollow curves *m n*, before and behind the angular point *o*, substantially as described.
4. I also claim the hooked arm *g*, forming part of the sere, and operated by it, said arm being arranged to work in a recess formed in the receiver *b*, and by means of its hook to engage the breech-block on its rear side, substantially as described.
5. I also claim locking the breech-block before firing by the combined action of the hammer and the projector *O*, and also locking it after firing by the combined action of the hammer and the straight side of said block forward of the hollowed part *m*, substantially as described.

This specification signed by me; this twenty-second day of May, 1867.

WILLIAM MORGENSTERN.

Witnesses:

W. HAUFF,  
G. BERG.