

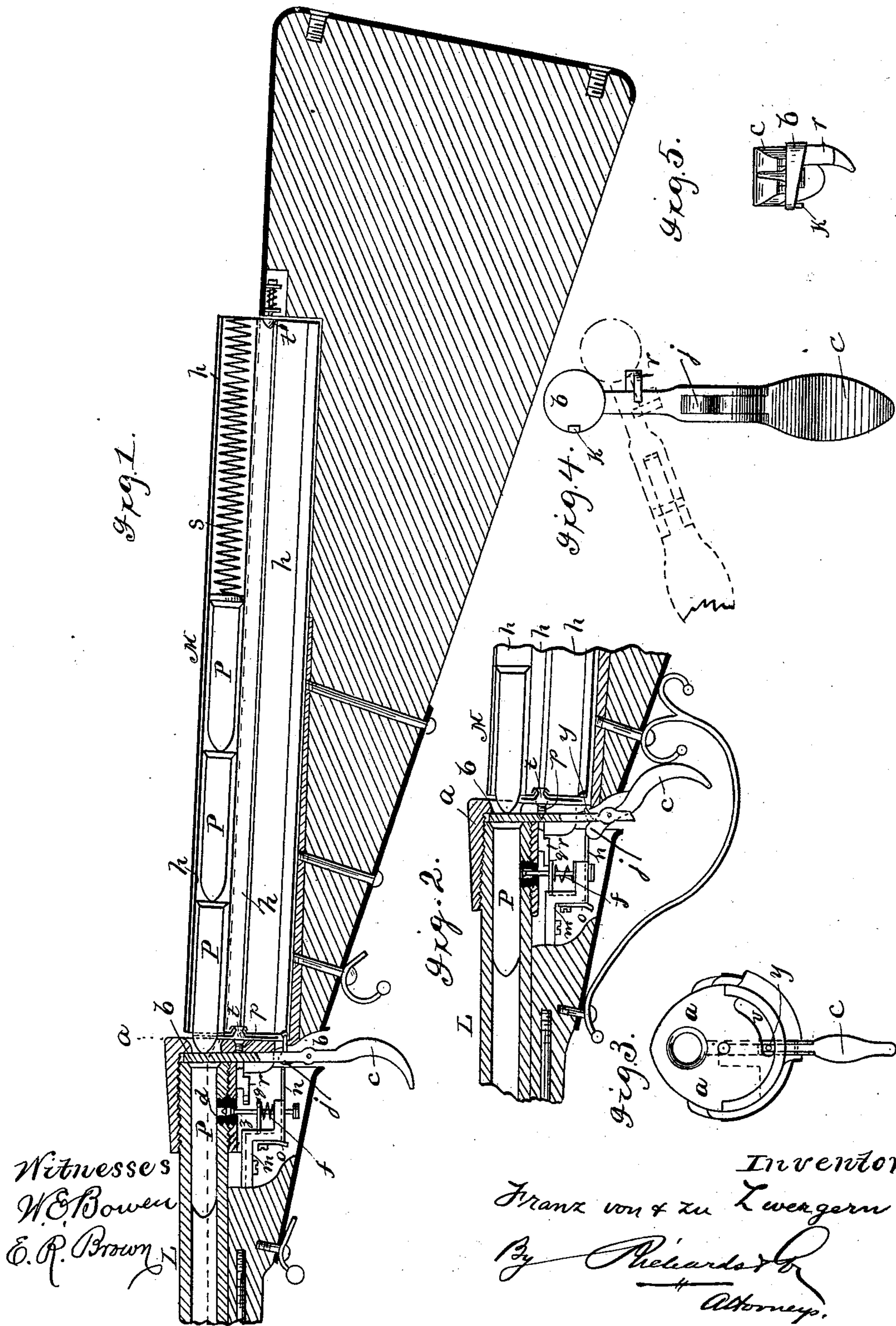
(No Model.)

2 Sheets—Sheet 1.

FRANZ VON UND ZU ZWERGERN.
FIRE ARM.

No. 426,977.

Patented Apr. 29, 1890.



Witnesses
W. E. Bower
E. R. Brown

Inventor
Franz von & zu Zwergern
By *Richardson*
Attorneys.

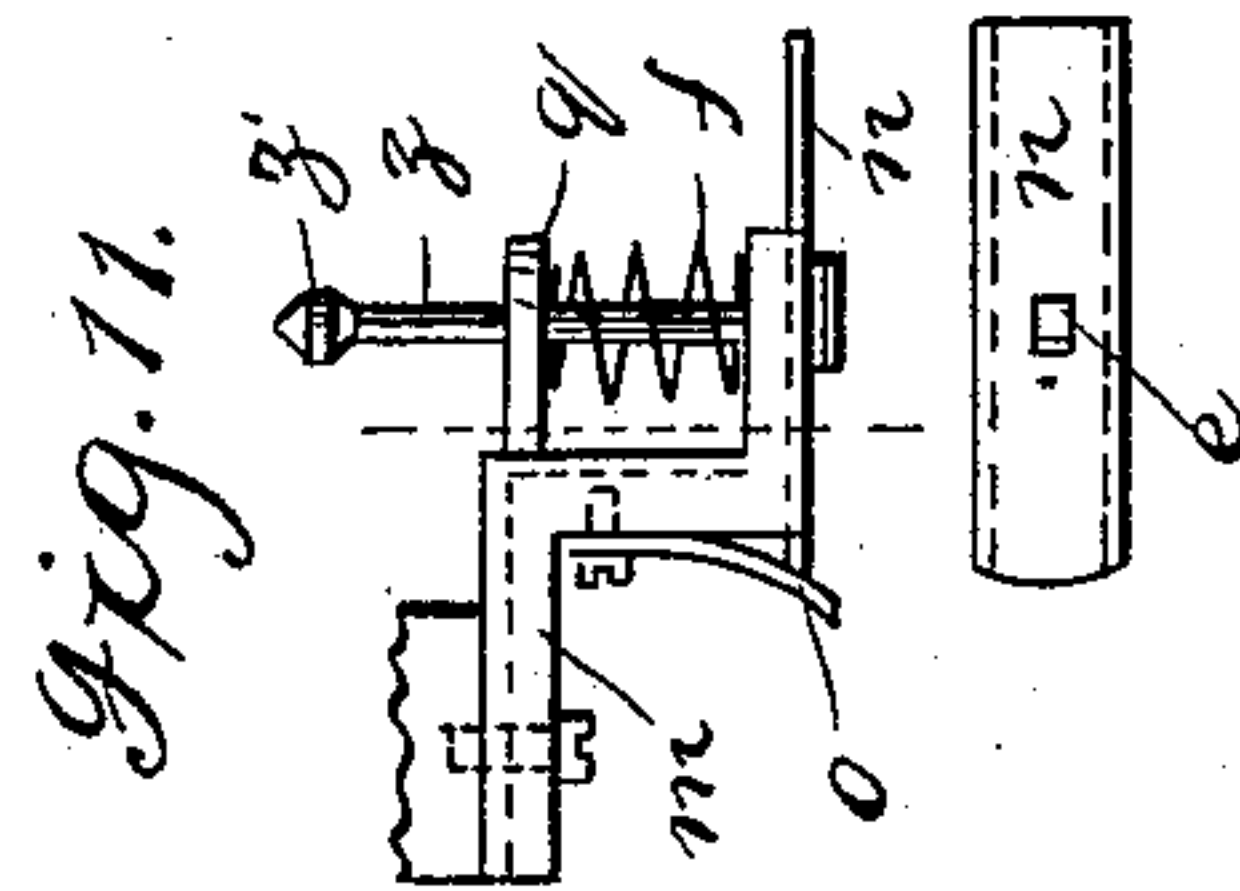
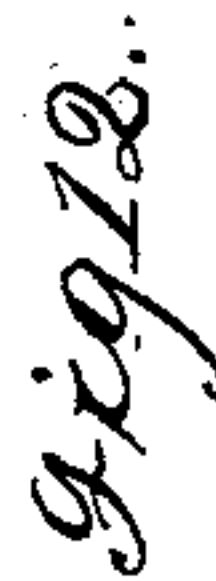
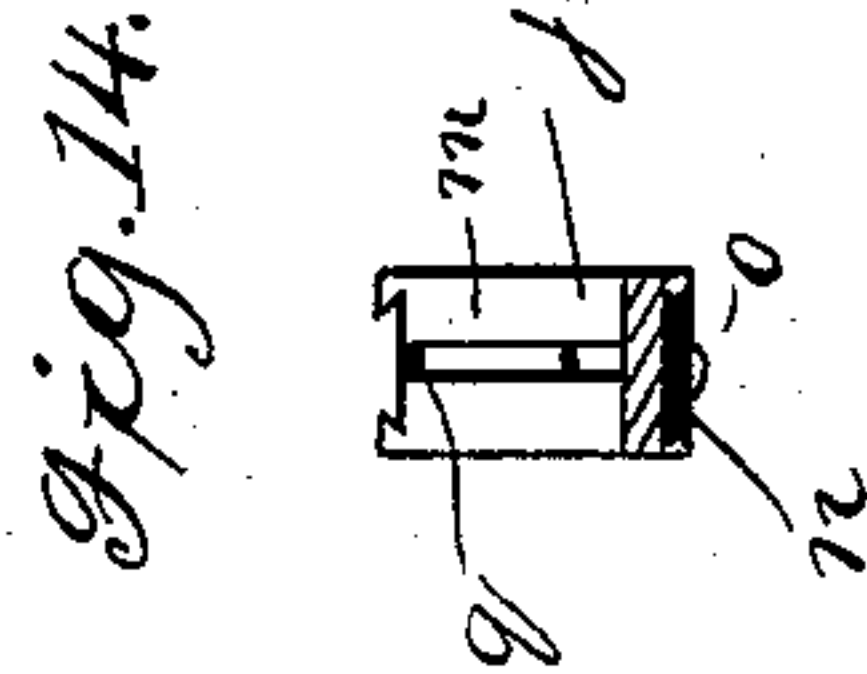
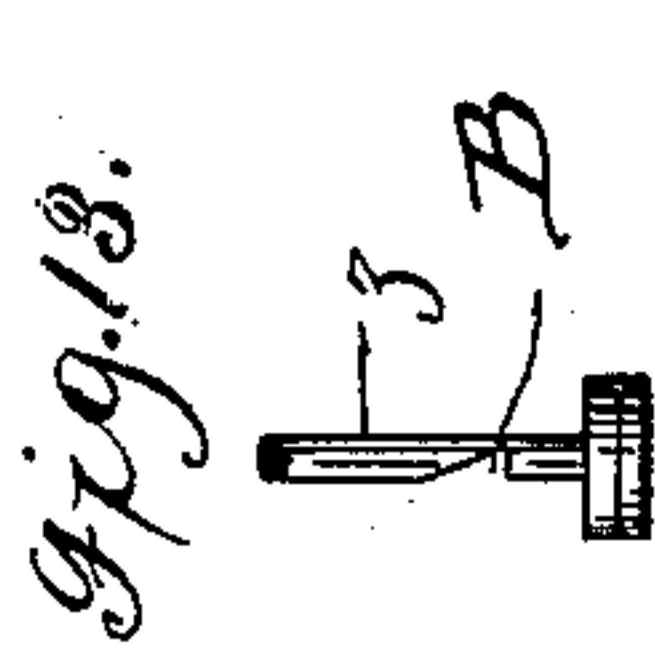
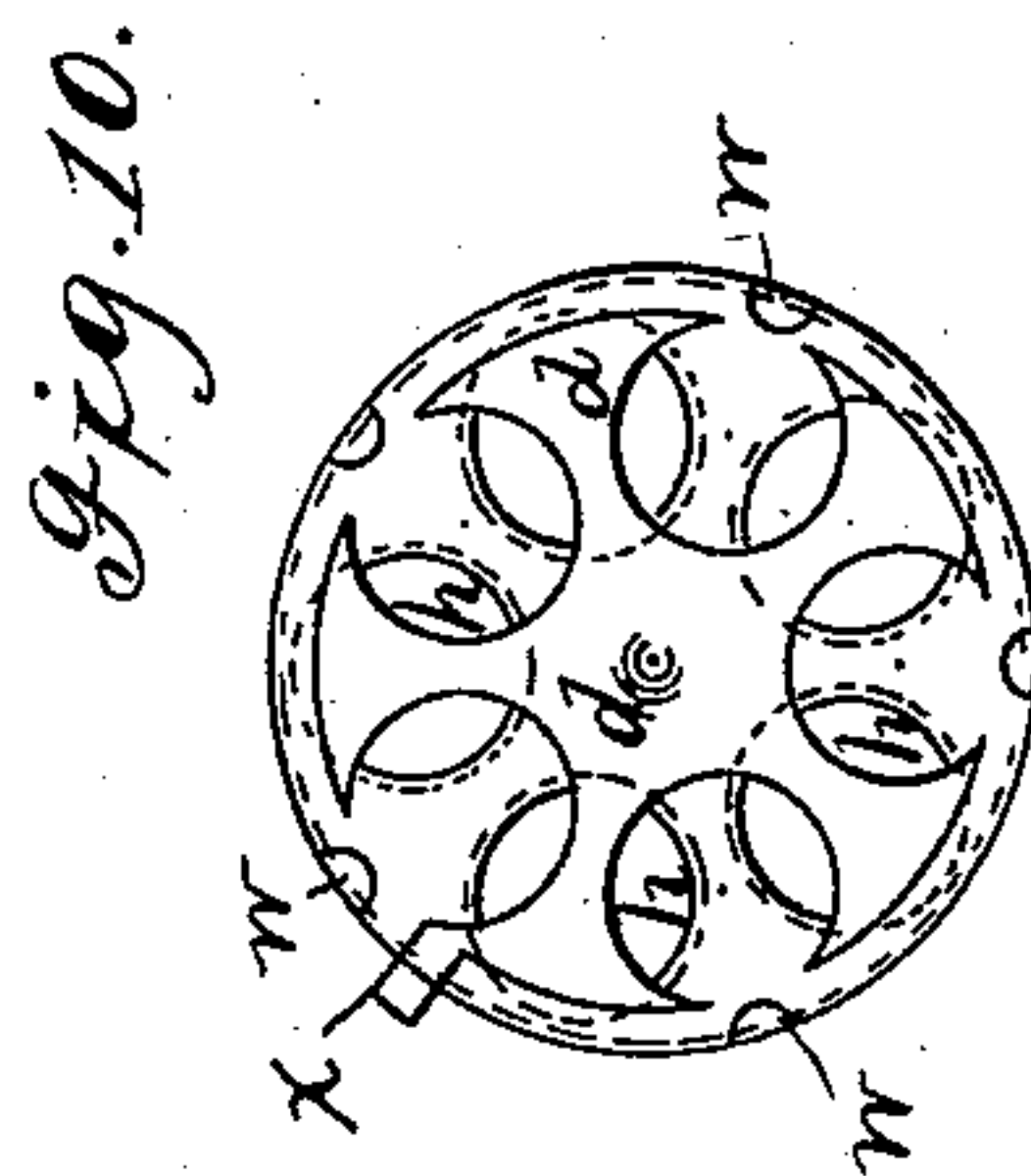
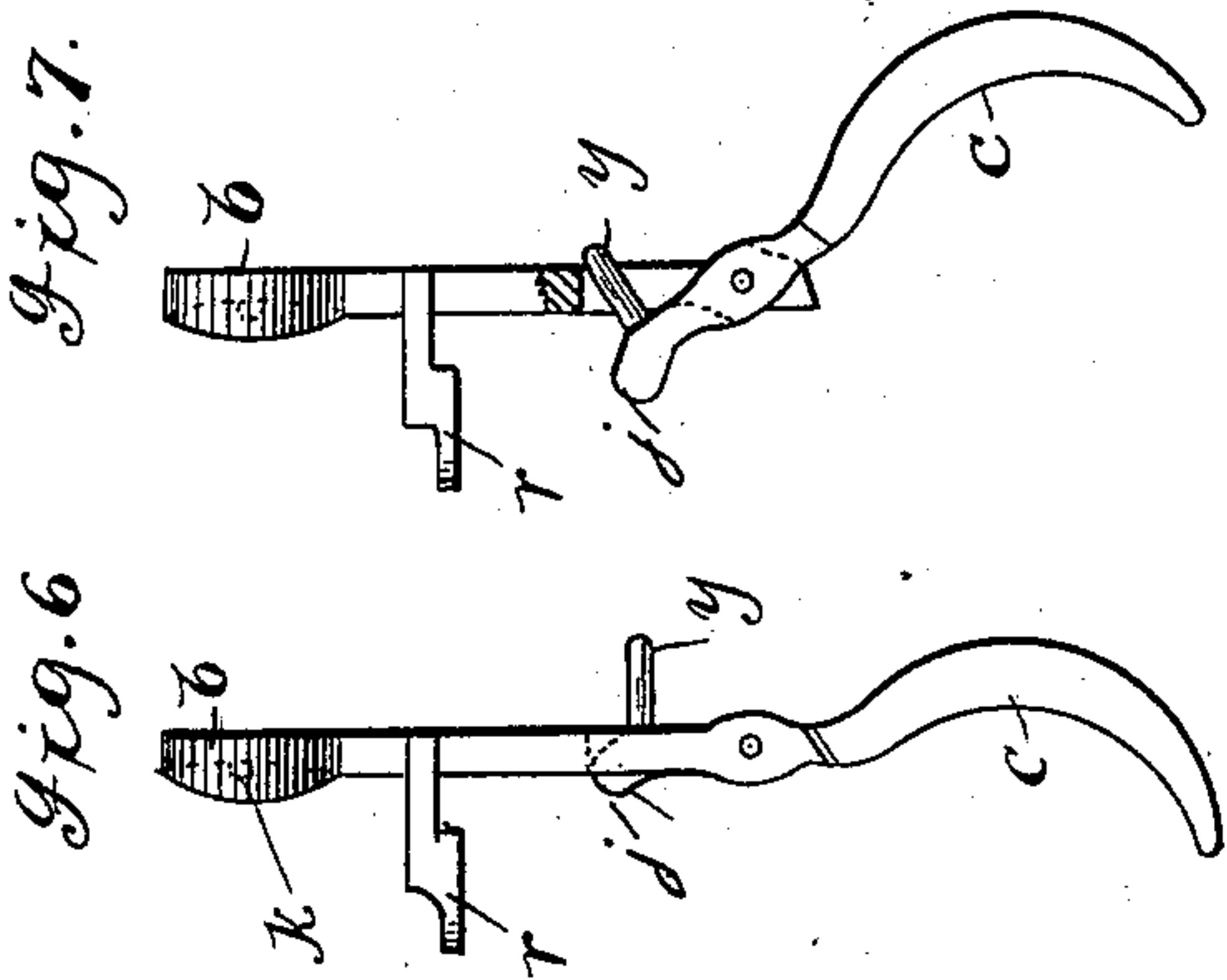
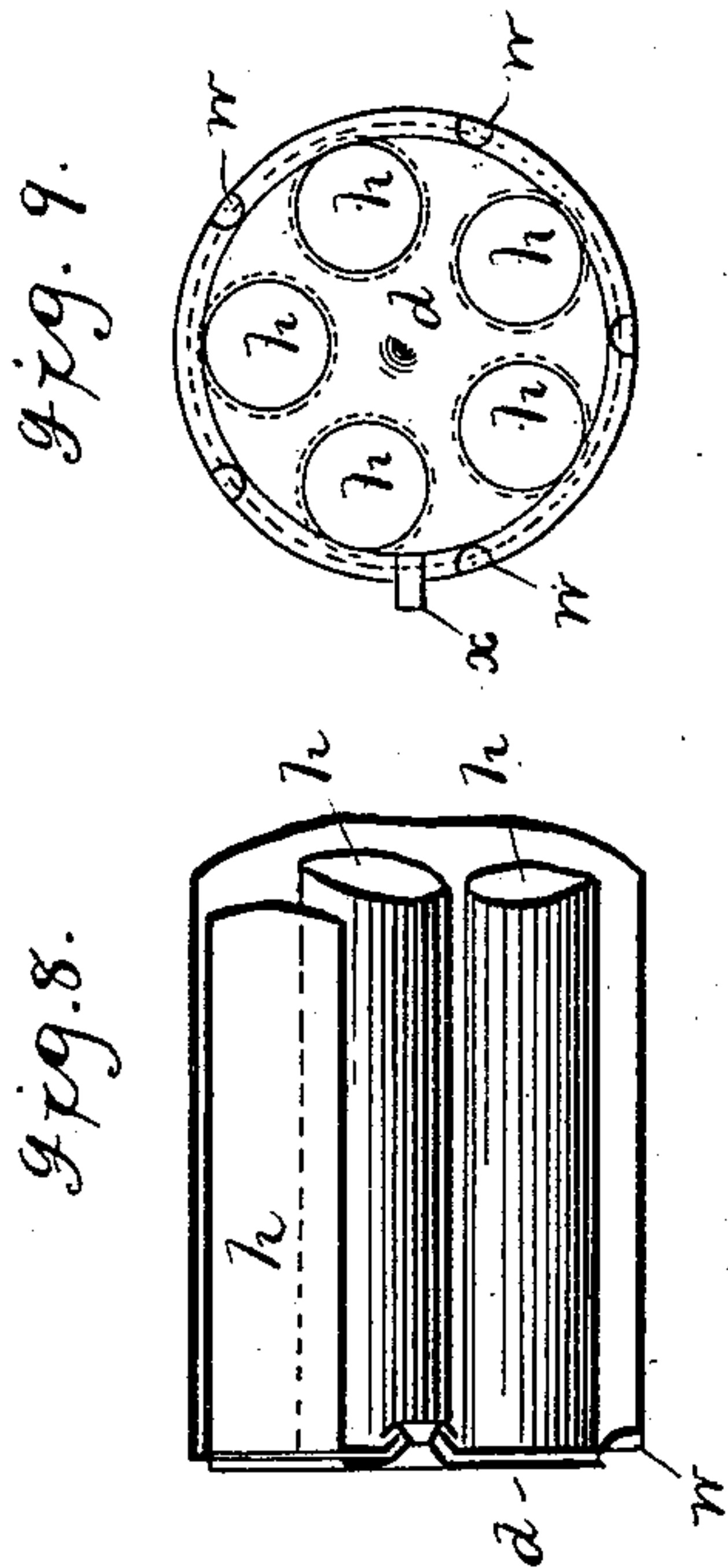
(No Model.)

2 Sheets—Sheet 2.

FRANZ VON UND ZU ZWERGERN.
FIRE ARM.

No. 426,977.

Patented Apr. 29, 1890.



Witnesses:

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E. R. Brown

Inventor:

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UNITED STATES PATENT OFFICE.

FRANZ VON UND ZU ZWERGERN, OF FRANKFORT-ON-THE-MAIN, GERMANY,
ASSIGNOR OF ONE-FOURTH TO JOSEPH G. EASTLAND, OF SAN FRANCISCO,
CALIFORNIA.

FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 426,977, dated April 29, 1890.

Application filed March 12, 1888. Serial No. 267,008. (No model.)

To all whom it may concern:

Be it known that I, FRANZ VON UND ZU ZWERGERN, a subject of the Emperor of Germany, residing at Frankfort-on-the-Main, Germany, assignor at one-fourth of my interest to Joseph G. Eastland, of San Francisco, California, have invented new and useful Improvements in Fire-Arms, of which the following is a specification.

My invention relates to certain improvements in magazine repeating fire-arms; and it consists, essentially, in, first, the employment of a removable revolving magazine located in the upper portion of the stock or butt of the gun, in which magazine provision is made for the arrangement concentrically to the axis of rotation of several series of cartridges and for automatically feeding each series to the barrel of the gun by separate spiral springs; second, the combination of a breech-closing lever between the barrel of the gun and the magazine with a trigger-lever and a fuse or firing-pin, and, third, the combination of a cam-faced breech-closing lever with a cartridge-head to form a packing or gas-check between the barrel and the breech-closing lever at the moment of explosion of the cartridge.

The invention is fully described in the following specification and illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of a magazine fire-arm embodying my improvements. Fig. 2 is a similar view showing the position of the various parts at the moment of firing. Fig. 3 is a transverse vertical section taken in the line *a b* of Fig. 1. Figs. 4 to 10 are detail views of the breech-closing lever and the magazine. Figs. 11 to 14 are detail views of the fuse or firing-pin.

In the upper edge of the stock or butt of the gun is a semi-cylindrical groove or recess, in which rests the removable magazine. This consists of a cylindrical casing *M*, made of any suitable material and provided with chambers *h*, each of which carries a row of cartridges, one behind another, with a spiral spring *s* at the rear end of each chamber for feeding the cartridges to the barrel of the

gun. The front end of the casing or magazine *M* is provided with a cover consisting of a circular plate or disk *d*, pivoted at its center, so as to revolve thereon, and having apertures corresponding in number and dimensions with the chambers *h* in the casing or magazine. At the front and rear ends of the casing or magazine *M*, in the center thereof, are sockets for engagement with pivots *t* *t'* at the front and rear ends of the semi-cylindrical groove or recess in the butt or stock, so that said magazine may rotate on said pivots as its longitudinal axis. The rear pivot *t'* is provided with a spring for pressing it forward, and also allowing it to yield in order to facilitate the insertion and removal of the magazine. When the casing or magazine is placed in position in the groove or recess, a pin *x* on the edge of the cover *d* engages with the edge of the groove or recess and turns the cover so as to place the apertures in line with the chambers *h*, so that when in position for firing the uppermost chamber will be in line with the breech of the barrel, in order that the cartridges may be properly fed into the barrel.

A cap or closing piece *a* is screwed on the rear end of the barrel, and at its center is a pin *p*, on which rotates the breech-closing lever *b*, which consists of a disk having a downwardly-extending shank, to the lower end of which is connected by a hinge-joint the trigger-lever *c*. The breech-closing lever *b* is provided with a cam *r*, which engages with and compresses the mainspring *f*, in order to operate the fuse or firing-pin *z*, as hereinafter described.

In the closing-piece *a* is a segment-shaped opening *v*, (see Fig. 3,) in which works a pin *y*, projecting from the trigger-lever *c*. This pin *y* projects through the opening *v* and engages with sockets or recesses *w* in the edge of the front end of the magazine or casing *M*, (see Figs. 8, 9, and 10,) said sockets or recesses corresponding in number with the number of cartridge-chambers *h* in the magazine. When the breech-closing lever *b* is oscillated in one direction, it places the opening therein in line with the breech of the barrel and the

uppermost cartridge-chamber *h*, and at the same time, by the engagement of the pin *y* with one of the sockets or recesses *w*, the magazine *M* is rotated, so as to bring the next
5 cartridge-chamber *h* to the uppermost position and in line with the breech of the barrel.

The breech-closing lever *b* is chamfered toward the side of the opening, so that it is wedge-like in its cross-section, and it has on
10 its periphery a small hook *k*, which serves to eject the head of the cartridge after firing.

The fuse or firing-pin *z* has at its upper end a head *z'*, working in a cylindrical casing *d*, which is screwed through the closing-piece
15 *a* and the barrel *L*. This head *z'* is conical and sharp-pointed, so that at the moment of firing the head fits closely in a correspondingly-shaped seat in the closing-piece *a* and acts as a gas-check to prevent the downward
20 escape of gas.

The fuse or firing-pin *z* has attached to it near its upper end a circular plate or disk *q*, on the edge of which is a notch which engages with the vertical portion of an elbow-shaped
25 arm *m*, which is properly secured to the stock in the cavity provided for the lock mechanism, and the lower portion of the pin *z* works in a horizontal extension of the arm *m*. By this means the pin *z* is allowed a vertical motion, but is prevented from turning. The
30 disk *q* serves as a follower, and the spiral mainspring *f* surrounds the pin and works between the disk and the horizontal extension of the arm. In the underside of the horizontal extension, fitting in dovetail ways, is a
35 sliding plate *n*, (see Fig. 12,) in which is a slot *e*, through which the pin *z* passes and is provided with a head on its lower end. On the front side of the vertical portion of the
40 elbow-arm *m* is a flat spring *o*, the free end of which bears against the sliding plate *n*, with a tendency to press it backward, and on the pin *z*, between the bearings of the mainspring *f* is a notch *B*, (see Figs. 13 and 14,) for engagement with the slot *e*, as hereinafter
45 described.

At the time of the explosion of the cartridge the breech of the barrel is closed by the breech-closing lever *b*. When this lever
50 is oscillated in one direction to eject the head, the pin *y*, by engaging with one of the sockets or recesses *w*, rotates the magazine *M* sufficiently far to bring another of the chambers *h* in line with the breech of the barrel and
55 allow a fresh cartridge to be fed into the barrel by the spring *s*. At the same time the cam *r* on the breech-closing lever *b* presses downward on the disk *q* until the notch *B* of the firing-pin is engaged by the slot *e* in the
60 sliding plate *n*, operated by the spring *o*, and thus the mainspring *f* is compressed and the firing-pin is held down in position for firing. When the lever *b* is moved in the opposite direction, the breech is closed, with the cartridge in place in the barrel. When the trigger-lever *c* is pulled, the nose *j* of the trigger

bears against the rear end of the sliding plate *n* and presses it forward, so as to disengage the notch *B* from the slot *e*, and thus release the firing-pin *z* and allow the spring *f* to force
70 it upward to strike the fulminate and explode the cartridge.

A fire-arm constructed according to this invention possesses many advantages over others heretofore in use. The gun proper is
75 completely independent of the magazine *M*, so that said magazine may be used as a common cartridge-box and carried or transported separately from the gun, which is thus lessened in weight. By this construction, also,
80 the magazine is easily removed when exhausted and refilled or replaced by another; or, if desired, the magazine may sometimes be dispensed with and the gun used as a single-loader by feeding one cartridge at a time
85 in the usual manner. By this construction, also, the mechanism is simplified, the cost is lessened, the arm is rendered lighter than those in ordinary use, and the loading, manipulating, cleaning, and keeping in repair
90 are greatly facilitated. Moreover, provision is made for changing guns of various old patterns so as to conform to the improvements included in this invention.

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

1. The combination, with the butt having a semi-cylindrical recess in its upper edge, of a cylindrical magazine *M*, the lower portion of which is received in said recess, a fixed
100 pivot-pin *t*, and a spring-pressed movable pivot-pin *t'*, upon which the magazine is rotatably and removably mounted, substantially as described.

2. The combination, with the barrel *L* and
105 magazine *M*, of the breech-closing lever *b*, mounted rotatably between them and arranged to be oscillated laterally to open communication between the magazine and the barrel, substantially as described. 110

3. The combination, with the barrel, of a breech-closing lever *b*, having a wedge-shaped head to form a gas-tight closure of the barrel, substantially as described.

4. The combination, with the barrel, of the
115 breech-closing lever *b*, provided with the hook *k*, adapted to engage with and eject the shell when the lever is oscillated, substantially as described.

5. The combination, with the firing-pin *z*
120 and its actuating-spring *f*, of the breech-closing lever *b*, pivotally secured to the closing-pin and provided with a cam *r*, adapted to depress the pin and compress the spring when said lever is oscillated, substantially as de- 125 scribed.

6. The combination, with the rotatable magazine *M*, of the breech-closing lever *b*, pivotally secured to the closing-piece and provided with a hinged trigger *z*, having a pin *y*, adapted
130 to actuate the magazine when the lever is oscillated, substantially as described.

7. The combination, with the breech-closing lever *b*, pivotally secured to the closing-piece, and its hinged trigger *c*, having a nose *j*, of the spring-actuated firing-pin *z* and the
5 sliding plate *n*, engaging with the pin and adapted to be moved by the nose of the trigger, substantially as described.

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

FRANZ VON UND ZU ZWERGERN.

Witnesses:

FRANZ HASSLACHER,
JOSEPH PATRICK.