

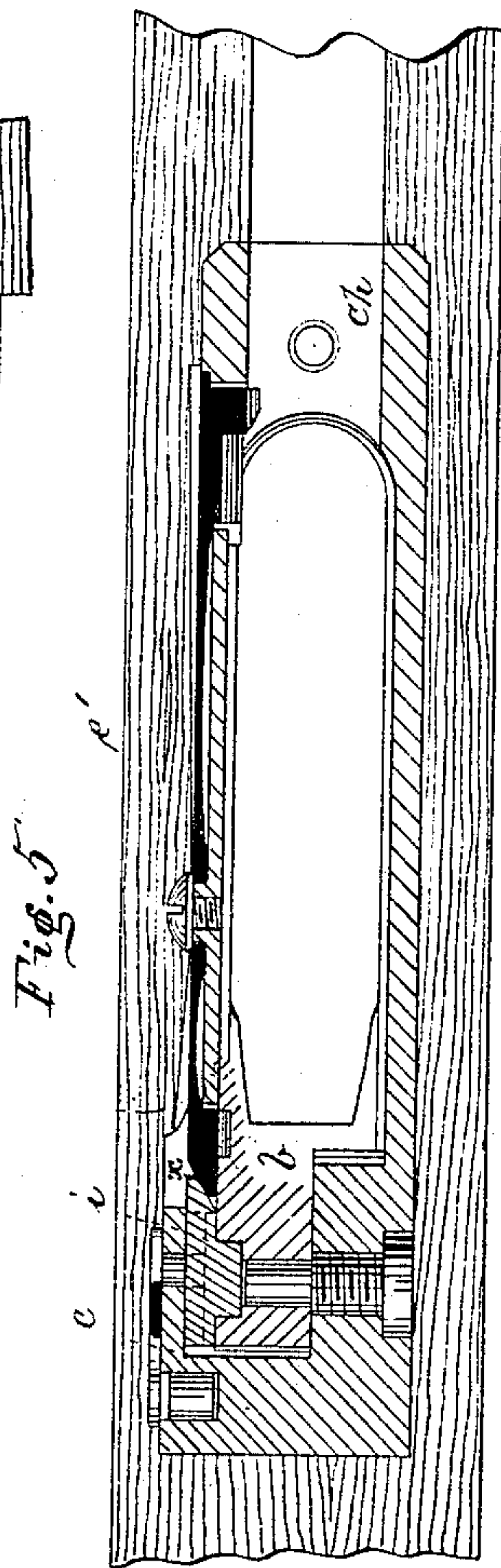
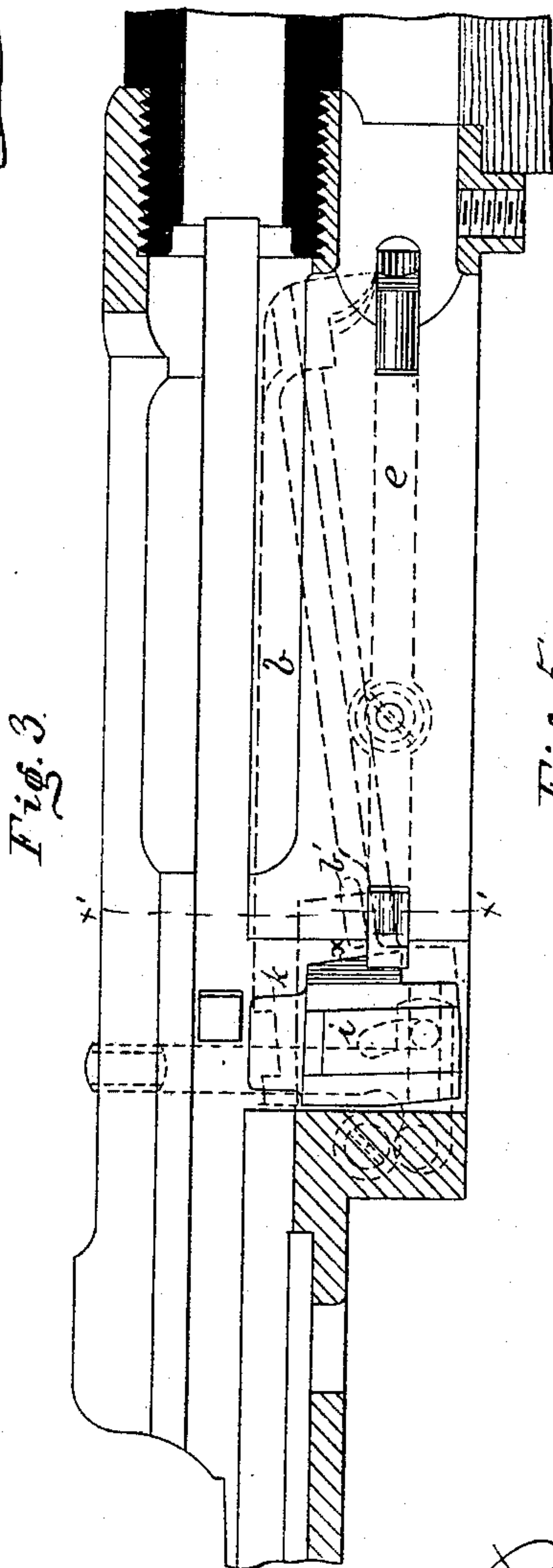
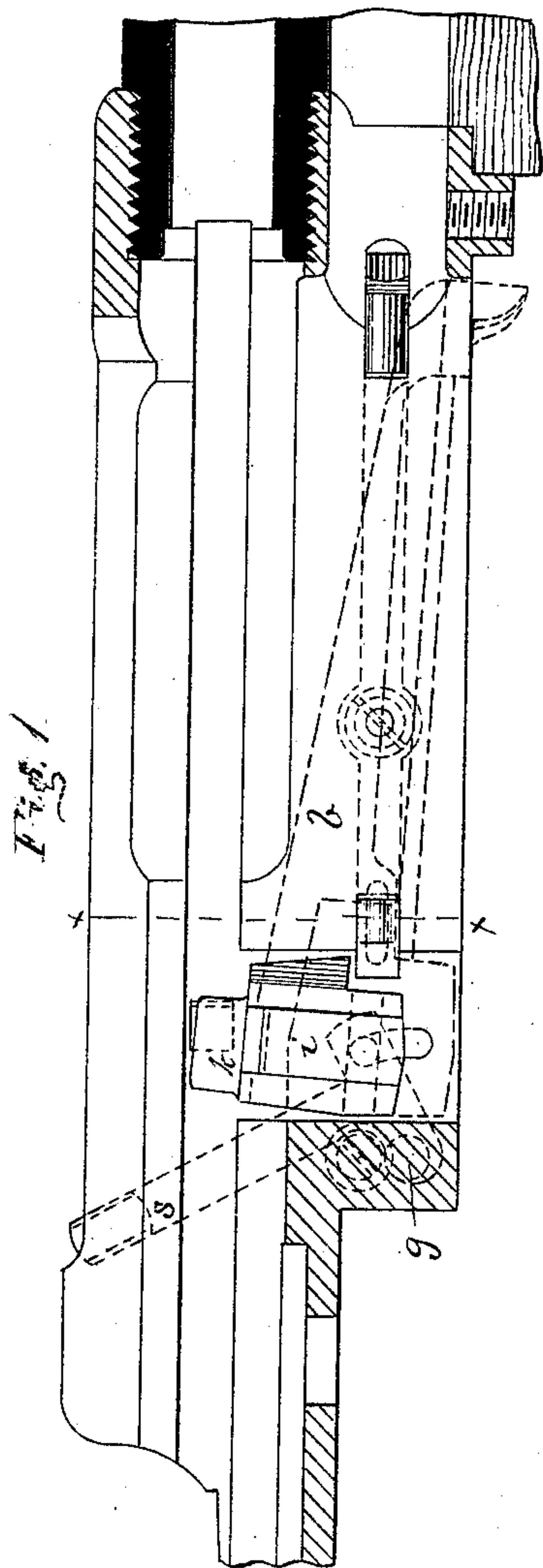
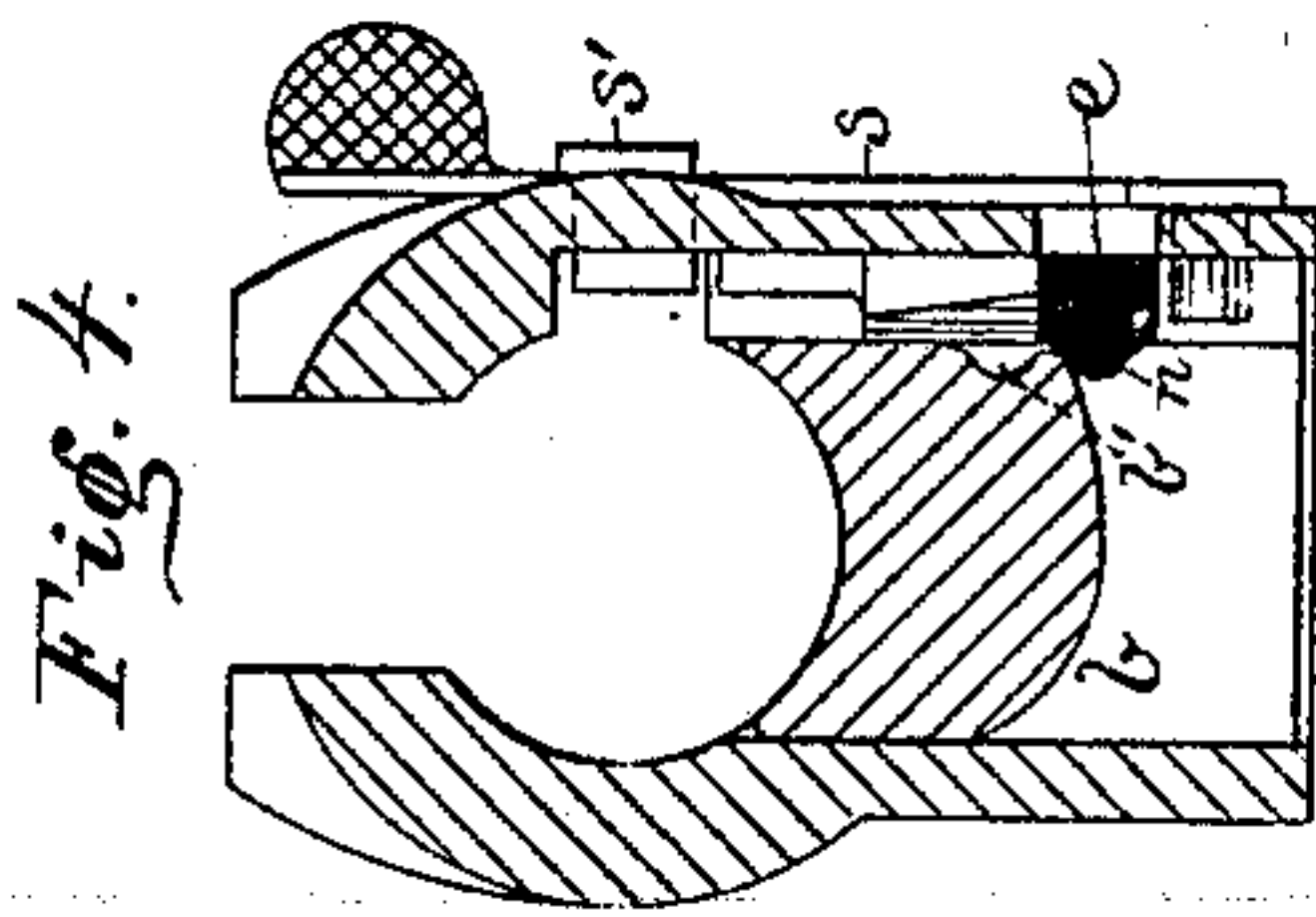
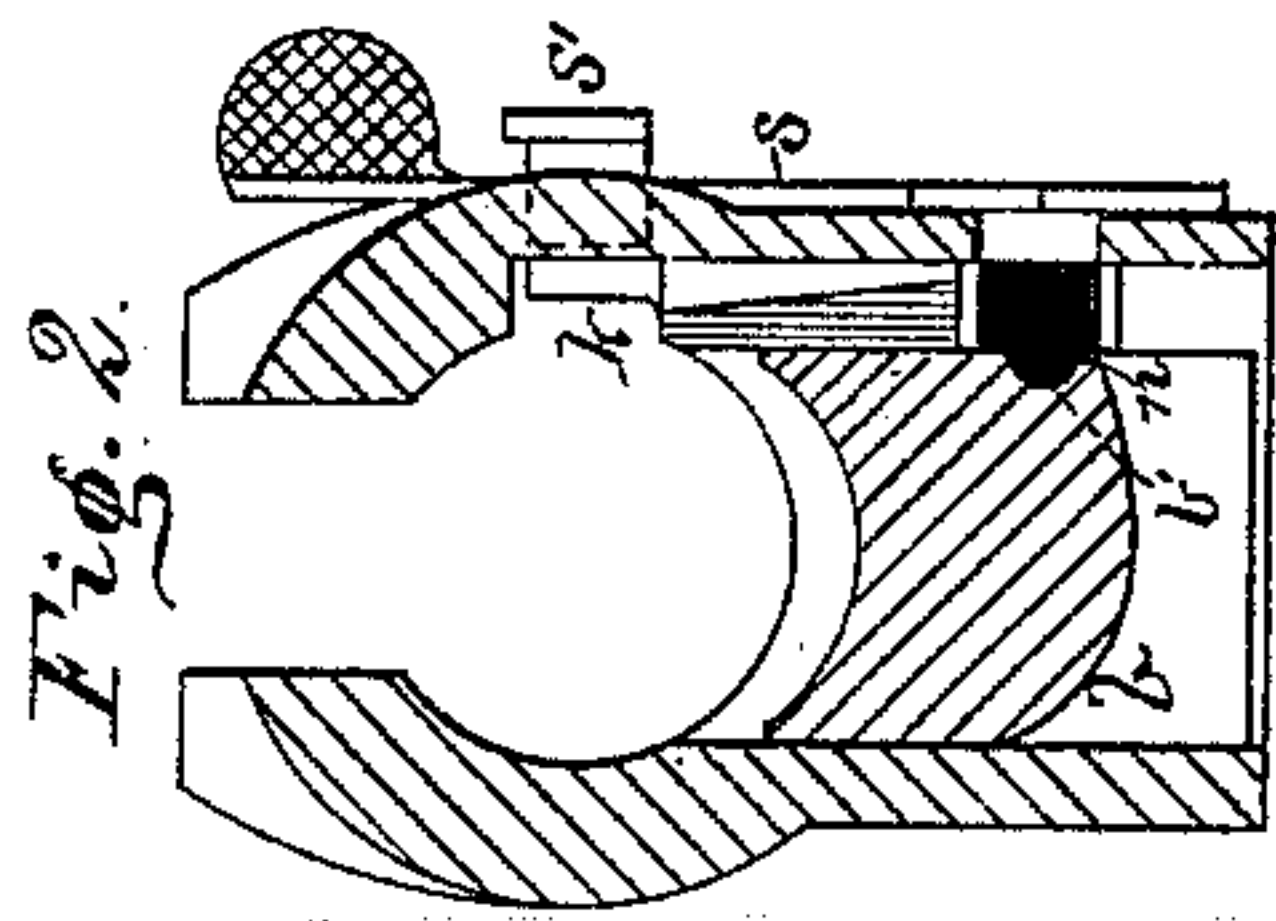
(No Model.)

4 Sheets—Sheet 1

P. MAUSER.
MAGAZINE FIRE ARM.

No. 270,599.

Patented Jan. 16, 1883.



Witnesses:
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Charles R. Seale,

Paul Mauser
by his attorney
Thomas L. Stearns

(No Model.)

4 Sheets—Sheet 3.

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Fig. 16.

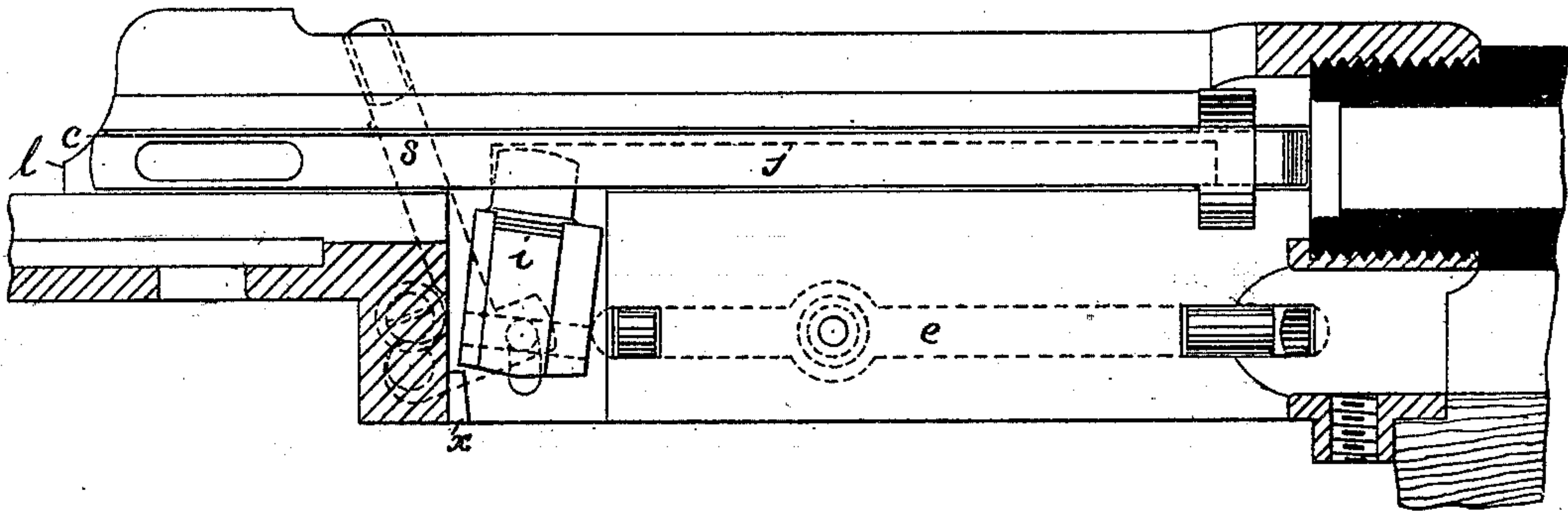


Fig. 17.

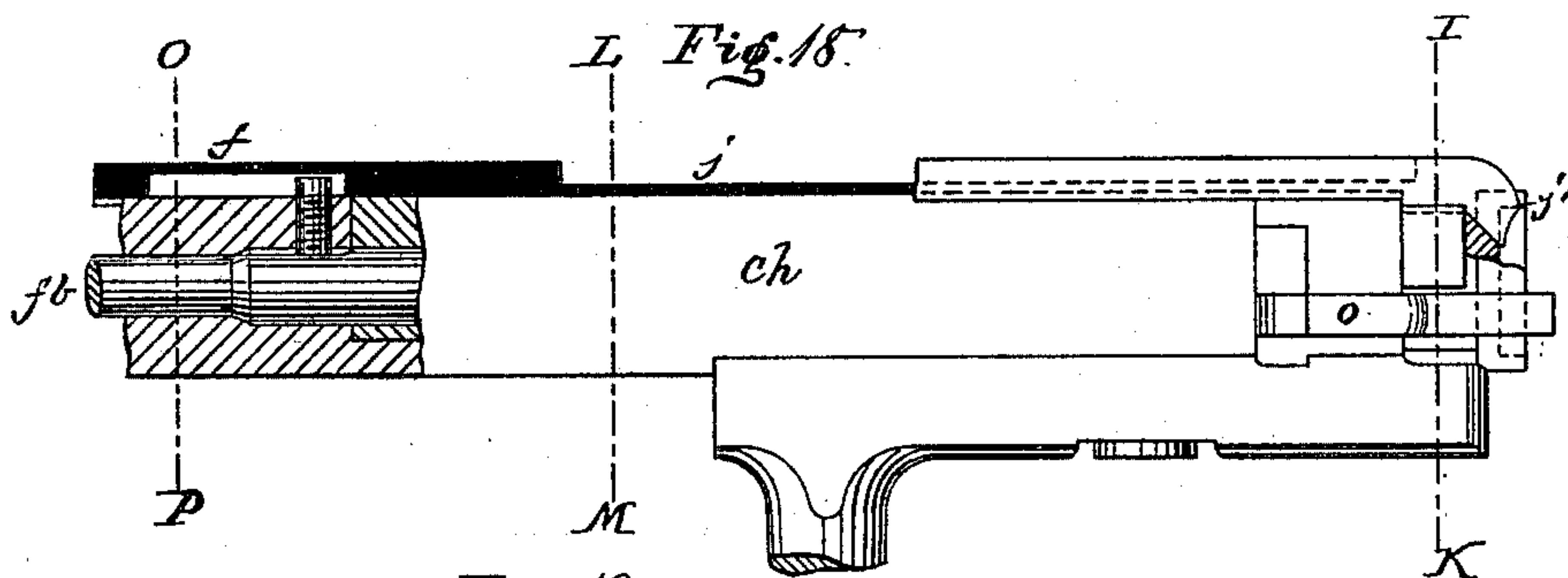
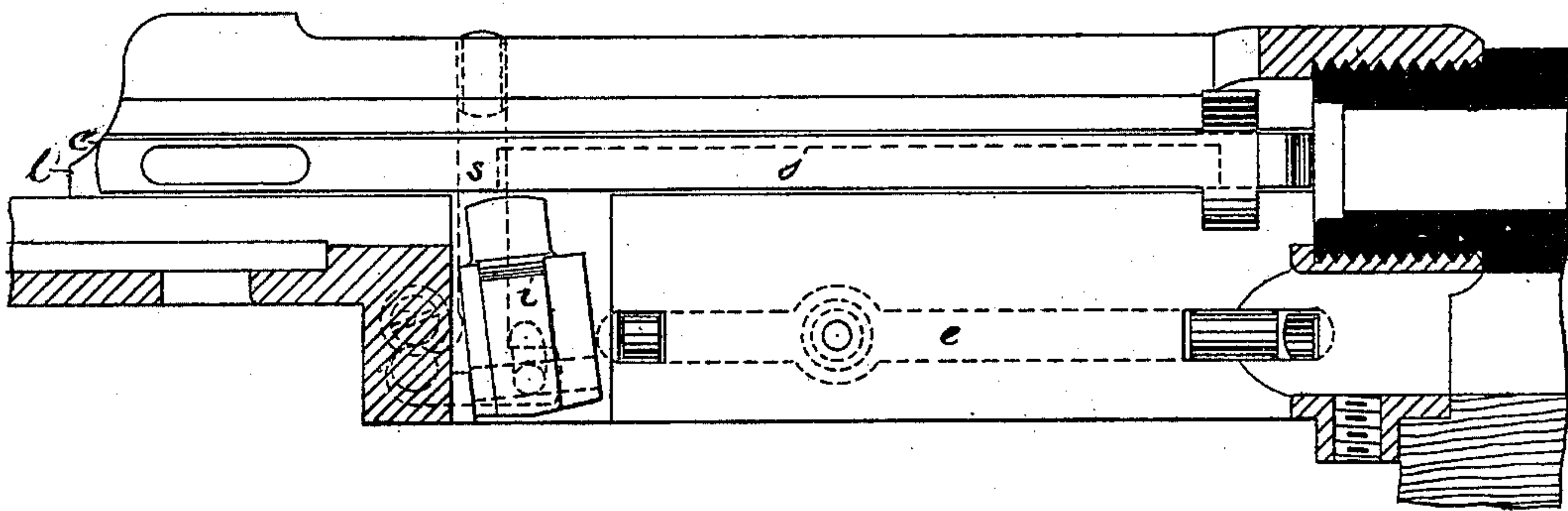
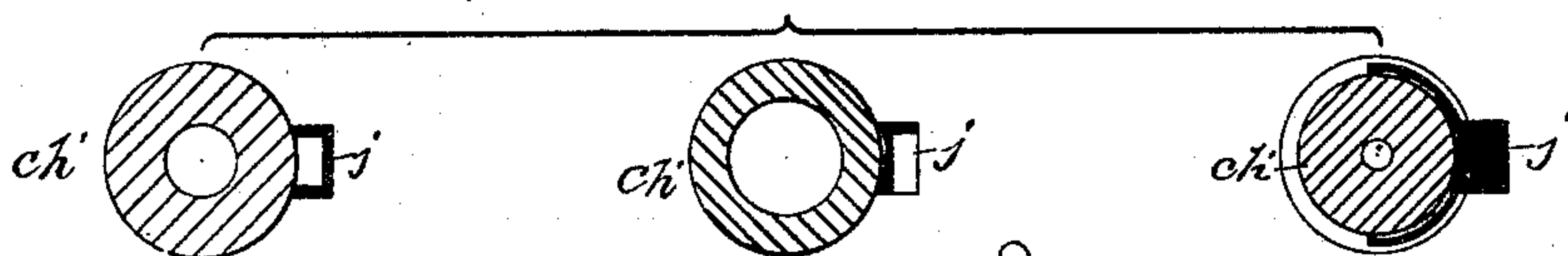


Fig. 19.



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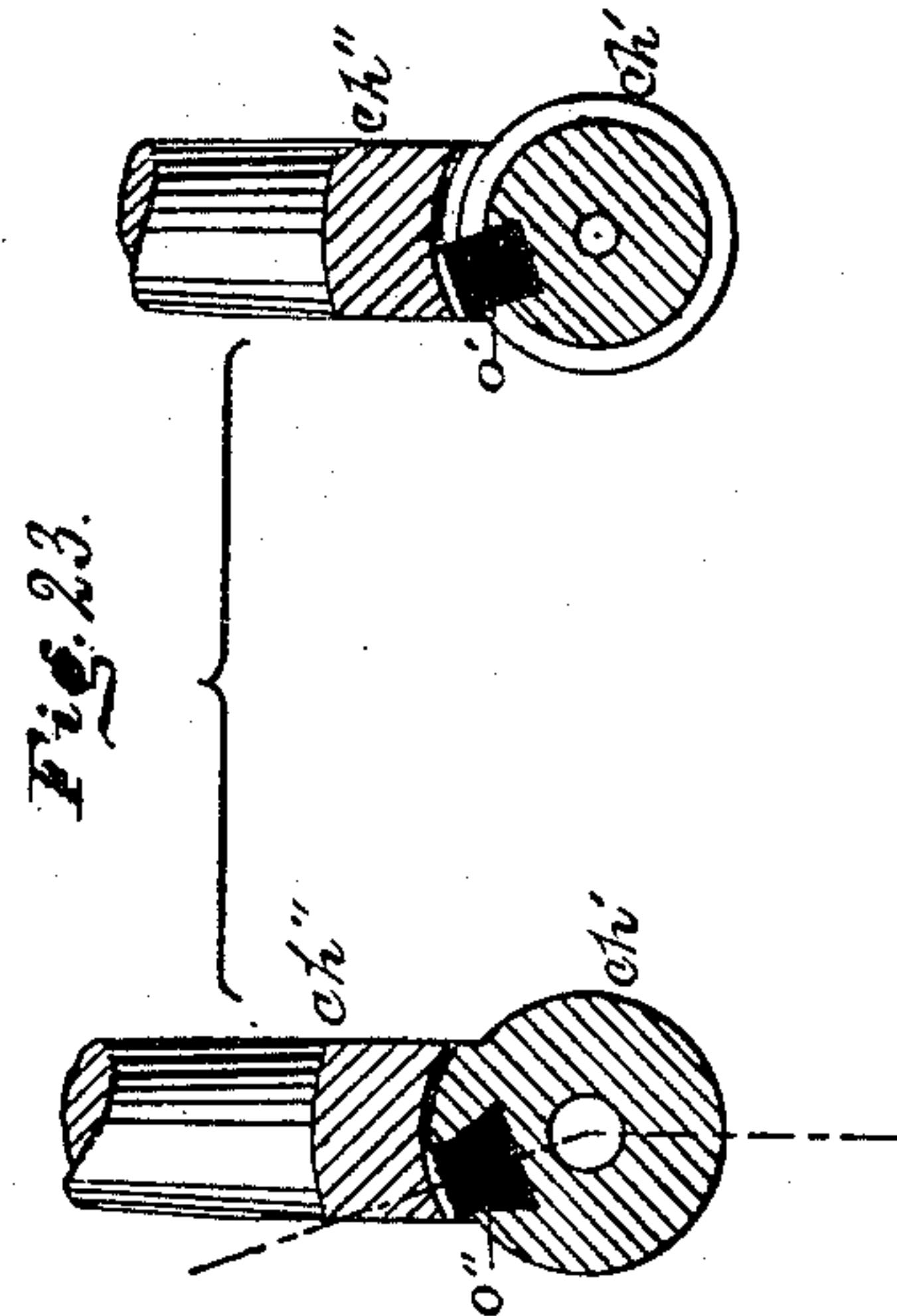
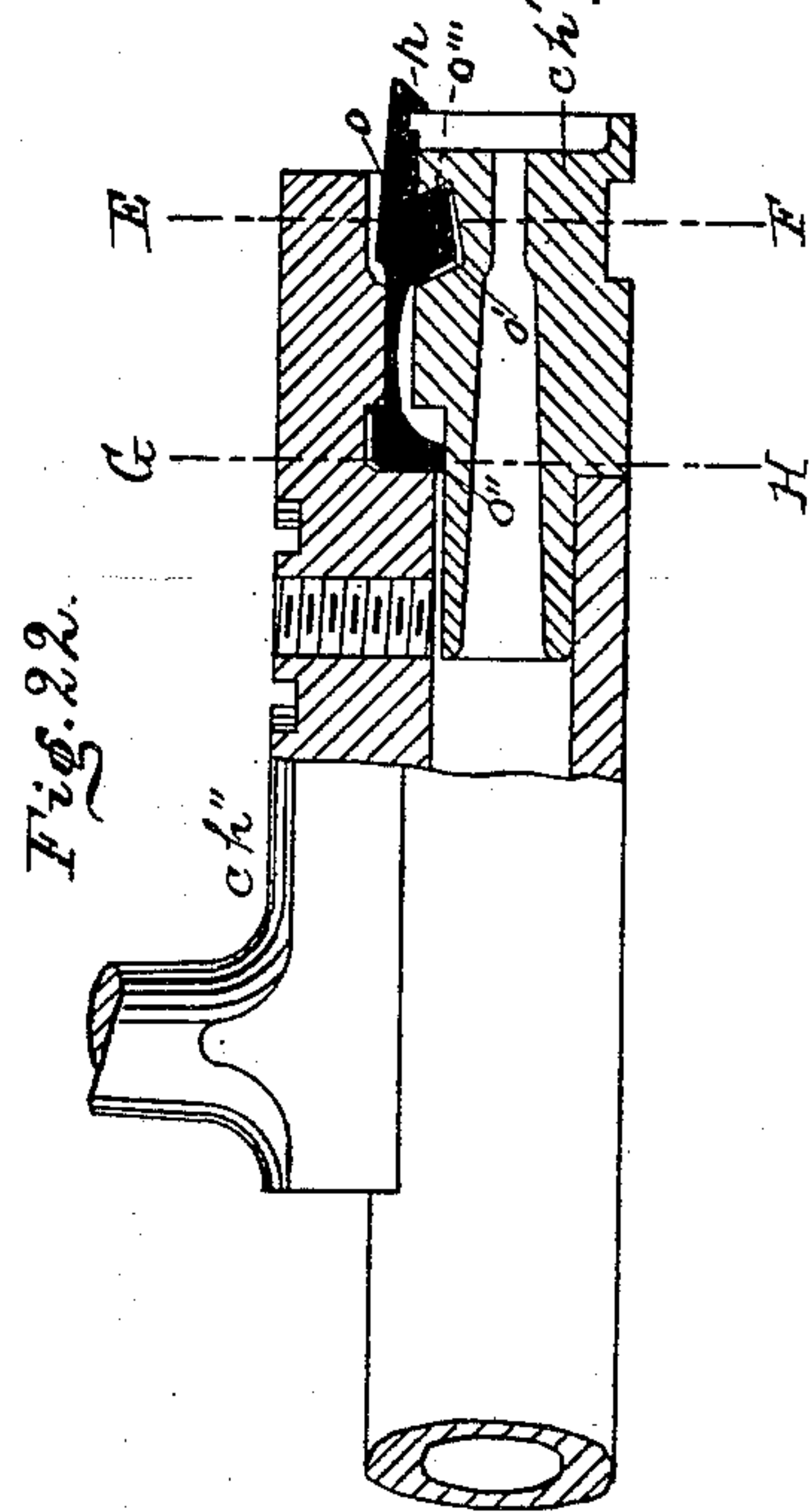
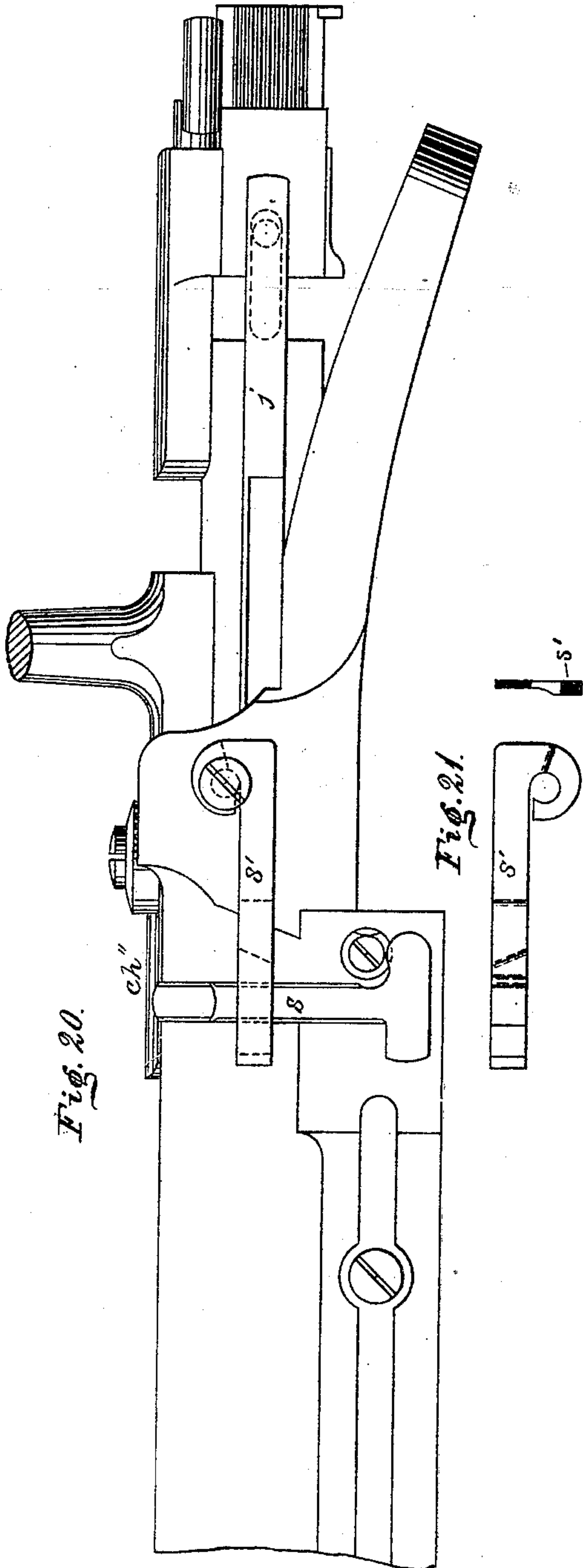
(No Model.)

4 Sheets—Sheet 4.

P. MAUSER.
MAGAZINE FIRE ARM.

No. 270,599.

Patented Jan. 16, 1883.



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UNITED STATES PATENT OFFICE.

PAUL MAUSER, OF OBERNDORF-ON-THE-NECKAR, WÜRTTEMBERG, GERMANY.

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 270,599, dated January 16, 1883.

Application filed April 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, PAUL MAUSER, of Oberndorf-on-the-Neckar, in the Kingdom of Württemberg, Empire of Germany, have invented certain new and useful Improvements in Repeating Fire-Arms, of which the following is a specification.

This invention relates to that class of guns which are closed by a cylindrical breech-piece, whose locking and firing mechanism is known under the name of "Mauser," and in which the cartridge-magazine is situated beneath and along the barrel.

The present invention constitutes an improvement upon the invention set forth in an application for patent filed by me in the United States Patent Office June 3, 1881, Serial No. 34,871.

The object of this invention is to provide simpler and more reliable means for extracting and expelling the empty cartridge-shells after they have been fired, and for setting and releasing the cartridge-carrier. It will be understood as hereinafter set forth and claimed.

The accompanying drawings form a part of this specification, and illustrate the invention as best applied.

Figure 1 is a vertical longitudinal section of the breech-frame, certain parts being removed to show the carrier in its freely-working position. Fig. 2 is a vertical cross-section of Fig. 1 on line $x x$, looking toward breech. Fig. 3 is a section similar to Fig. 1, with the carrier set. Fig. 4 is a vertical cross-section of Fig. 3 on line $x' x'$, looking toward the breech. Fig. 5 is a horizontal longitudinal section of the breech-frame, taken through the axis of the carrier. Fig. 6 is a detail showing the slide i , hereinafter described, in side and edge elevations and a plan view. Fig. 7 is a side view of the case, showing the operating-lever. Fig. 8 is a cross-section of Fig. 7 on line $x x$, looking toward the lever. Figs. 9 and 10 are horizontal longitudinal sections of Fig. 7, showing the lever s in its two extreme positions. Fig. 11 shows a side elevation, a plan, and an inverted plan of the carrier. Fig. 12 shows an exterior elevation, a plan, and an interior elevation of the spring e . Fig. 13 shows an exterior elevation, an edge view, and an interior elevation of the springs s' . Fig. 14 shows an exterior elevation, an edge view, and an interior

elevation of the lever s . Fig. 15 shows the extractor o in exterior and interior elevation and plan view. Figs. 16 and 17 are vertical longitudinal sections of the breech-piece, showing the extractor and ejector and the slide-block in its two extreme positions. Fig. 18 is a top view of the closed chamber, the back end of which is broken or cut away to show the firing-bolt. Fig. 19 shows three cross-sections of Fig. 18 on the lines O P, L M, and I K, respectively. Fig. 20 is a side view of the whole breech-frame, having the chamber ch exposed. Fig. 21 shows the spring s' in elevation and in section. Fig. 22 shows the bolt or breech chamber, partly in section and partly in side view. Fig. 23 shows two vertical cross-sections on dotted lines G H and E F, Fig. 22.

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

Figs. 1 to 15 comprise a modification of the devices shown in the above-referred-to application of June 3, 1881, which throw the cartridge-carrier into and out of engagement and fix it in its extreme positions. The offset in the chamber or case, into or against which the back edge of the sliding block rested in the former application, is dispensed with. The block i slides up and down in a square recess on the side at the rear end of the carrier b , and is actuated by a pin, v' , of the shorter arm v of the lever s . The lever s turns on a center, g . The pin v' of the arm v works through a curved slot in the case ch and along a cross-slot, i' , of the block i , which is held to its seat by being filled between the case c and the carrier b , and participates in the movements of the carrier b when the latter is in action, as shown in Fig. 1. The block i is provided with a raised top, k , which will be rocked by the shoulders $p q$ of the extractor o when the breech-chamber is opened or closed, as was fully described in the former application above referred to. This rocking motion of the block i causes the carrier b to rise and fall.

To hold the carrier b in its lower position, the projection n on the spring e enters a groove, b' , on the side of the carrier b , and holds it firmly until the blow given the top k of the slide i by the shoulder q of the extractor in opening the breech-chamber breaks the connection and releases and raises the carrier b .

When, by operating the lever s , the block i

is depressed (which should only be done when the breech-bolt ch is open and the carrier b raised) the top k is thrown out of reach of the shoulders p and q , and the gun is changed to a single-shooter. To fix the carrier b effectually in this position a chamfered nose, x , on the block i is brought to bear the corresponding-shaped end of the spring e , (see Figs. 5 and 12,) which prevents the end of the spring from moving. Thus conditioned, the carrier b , resting upon the projection n , is securely held until by raising the block i the gun is made to work again as a repeater.

To hold the lever s in its extreme positions and prevent it from being moved accidentally, the suitably-notched springs s' , the end of which is doubled, as shown, is screwed to the case. A square head, s'' , on the interior of the front end of the spring s' projects through a hole in the case c , and the end of the spring rests in the groove l . This head s'' serves as a stop for the lever s , and at the same time as a stop for the shoulders p and q . When the block i is raised the head of the spring, s'' , is drawn back out of the groove l . (See Fig. 10.) The empty cartridge-shell is ejected by the extractor o , in the manner described in the before-mentioned application of June 3, 1881, when the shoulder q strikes the top k . (See Fig. 9.) This will be done when the block i is down and the head s'' of the spring s' protrudes through the hole into the case.

When it is desired to remove the breech-chamber ch (which can only be done when it is open and the lever s stands in the position shown in Fig. 1) the lever s is moved forward a little, thus withdrawing the head s'' of the spring s' out of the groove l , and at the same time the breech-bolt ch is pulled back. At the moment the top k is freed from the shoulder q the latter will catch the head s'' of the spring s' and prevent it from entering the groove l . The bolt ch can then be withdrawn without difficulty. There is no difficulty in inserting the bolt ch , as the chamfered head of the extractor presses back the head of the spring s' and the bolt can be slid in.

In Figs. 16 to 23 the block i is shown substantially as described in the application of June 3, 1881. The offset is again formed in the case. The spring e and carrier b are also like the corresponding parts in that application; but the extractor, which then performed the duty of a shell-expeller, is altered and its action confined strictly to the extraction of the shell. It is made very short, (see Figs. 18, 22, and 23,) of a peculiar shape, and mounted in recesses suitably provided upon the head ch' of the breech-bolt ch . This extractor (marked o , as before) is provided with two lugs or projections, o' and o'' , of which the first one, o' , square in cross-section in Fig. 3, is here formed oblong or oval in plan view, and is cut under in front, as shown at o''' . The other projection, o'' , is dovetailed and square on the back end. The extractor is allowed some vertical play, but fits snugly sidewise. The extractor

may be on top or on the side of the head ch' when the breech-bolt ch is closed. It is preferred to place it near the top on the right side; but as shown in Fig. 23 it appears on the left, as the cut is taken from the front. In this position the guide-bar ch'' of the chamber will stand over and opposite the extractor o .

When an empty cartridge-shell is to be extracted the handle is turned upward and the breech-bolt ch moved a little backward, leaving the hook r of the extractor o clenched tightly to the rim of the cartridge-shell. The projection o' is forced into the undercut seat and fastens the extractor o rigidly to the head ch' . The bolt ch , being turned into its upright position, draws back the extractor together with the shell, which, once started, is easily drawn fully back by the rearward motion of the bolt ch . This is continued until the bolt is fully open. As the guide-bar ch'' of the bolt ch lies in all positions above the extractor o except when purposely removed, the latter cannot be lost out without removing the guide-bar. Hence there is no danger of its being lost by accident. When the bolt ch is nearly drawn back the expeller j will give a sharp eccentric push to the cartridge-shell from behind and throw it out. The expeller j finds its seat in the groove l' in the rear end, c , of the bolt ch , which in Figs. 1 to 15 received the extractor. The front end, j' , of the expeller j is bent inwardly and chamfered. (See Fig. 18.) To keep the expeller j connected to the bolt ch , two springing wings extending from the front end, j' , encircle the neck of the bolt-head ch' a little over half-way round, (see Fig. 19,) leaving a little play in the axial direction. This neck is formed by an annular angular groove turned in the head ch' , near its front end. The end j' of the expeller j , being fitted into a suitable cut in the front part of the head ch' , prevents the latter from being turned round. The middle part of the expeller j is milled, as shown in the second cut of Fig. 19, the ends of the so-formed recess serving as the formerly-described shoulders q and p to actuate the carrier b by striking the top k of the block i . The end of the expeller j is provided with a groove, (see first cut of Fig. 19,) which slides over a set-screw screwed into the small lock f . This screw, bearing upon a flat portion of the firing-bolt f^b , prevents said firing-bolt from turning loose in the bolt-nut. By means of this screw, in conjunction with the groove l' and the case c partly encircling the ejector j , the latter is guided effectually and kept in close contact with the bolt ch and the lock f , even when they are fully drawn back. By this arrangement it is possible to dispense with the guide-cheeks of tail-piece of the case, which, projecting above the other parts, hindered the free and comfortable handling of the gun. The ejector j prevents the small lock f from being accidentally turned and dispenses with other provisions for this purpose. The spring s' for fixing the lever s is preferably in the form constructed a little differently

from that shown in detail in Fig. 13. Instead of being doubled at the end where it is fastened to the case *c*, it is all a single thickness, (see Figs. 20 and 21,) provided at the rear end with a flat enlargement, which is drilled to let the fastening-screw pass through. The enlargement is thicker on its upper half than on the lower and is thicker than the main portion of the spring. The enlargement is cut away from the main portion of the spring on one corner, so that the fastening to the case by the screw forces only the thicker portion of the enlargement against the case. This construction gives the spring *s'* great elasticity. When the lever *s* has shifted down the block *i* (which can be done only after the bolt *c h* is opened and the carrier *b* has attained its highest position) the gun is converted into a single-shooter. The block *i* rests with its lower extremity against the offset *x* and keeps the carrier *b* fixed in its highest position, so that it cannot be depressed during the operation of loading cartridges singly. To expel the shells under this condition, the shoulder *q* of the expeller *j* must strike against a stop, and this stop is now formed by the square head *s''* of the spring *s'* protruding into the milled groove of the expeller *j*. The head *s''* in this instance takes the place of the top *k* in the former instance, Figs. 1 to 15. By this arrangement the block *i* cannot be raised when the chamber is closed, as the head *s''* is in the way, but only when it is open, and therefore the person using the arm cannot make any mistake. He can convert the single-shooter into a repeater and the repeater into a single-shooter only when the bolt is opened. This is a point

of great importance, as it gives him confidence in his arm and compels him to use it as a single-shooter from the moment he sees no cartridge upon the carrier.

I reserve the right to make the modifications shown in Figs. 16 to 23, inclusive, the subject-matter of a separate application for Letters Patent.

What I claim is—

1. The combination of the block *i*, having the chamfered nose *x*, and spring *e*, having a similarly-chamfered end and a projection, *n*, with the carrier *b*, provided with the groove *b'*, substantially as and for the purpose set forth.

2. The spring *s'*, having one end doubled and secured to the gun-case, and provided with a head, *s''*, upon the other end, protruding through a hole in the case, in combination with the lever *s* and extractor *o*, as and for the purposes described.

3. The lever *s*, turning upon the center *g*, and provided with the pin *v'*, in combination with the spring *s'*, having the head *s''*, and with the block *i*, provided with the slot *i'* and carrier *b*, substantially as set forth.

4. The lever *s*, with the pin *v'* and center *g*, in combination with the spring *s'*, having the head *s''*, block *i*, and offset *x*, and with the carrier *b*, substantially as described, and for the purpose set forth.

This specification signed by me this 24th day of February, 1882.

PAUL MAUSER.

Witnesses:

CARL T. BURRHARDT,
B. ROE.