

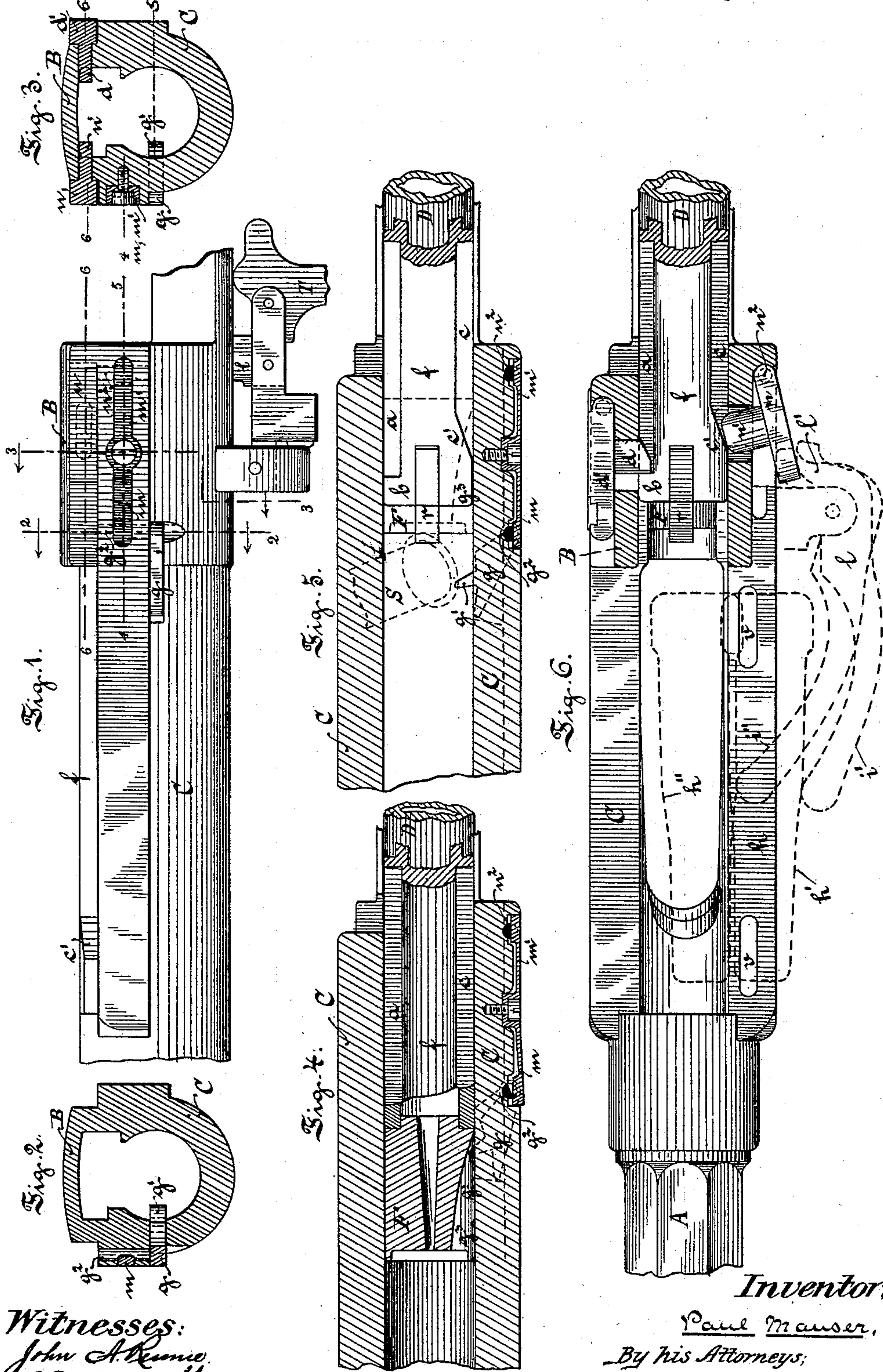
(No Model.)

3 Sheets—Sheet 1.

P. MAUSER.
BREECH LOADING FIRE ARM.

No. 406,924.

Patented July 16, 1889.



Witnesses:
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Inventor:
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By his Attorneys,
Arthur C. Draper & Co.

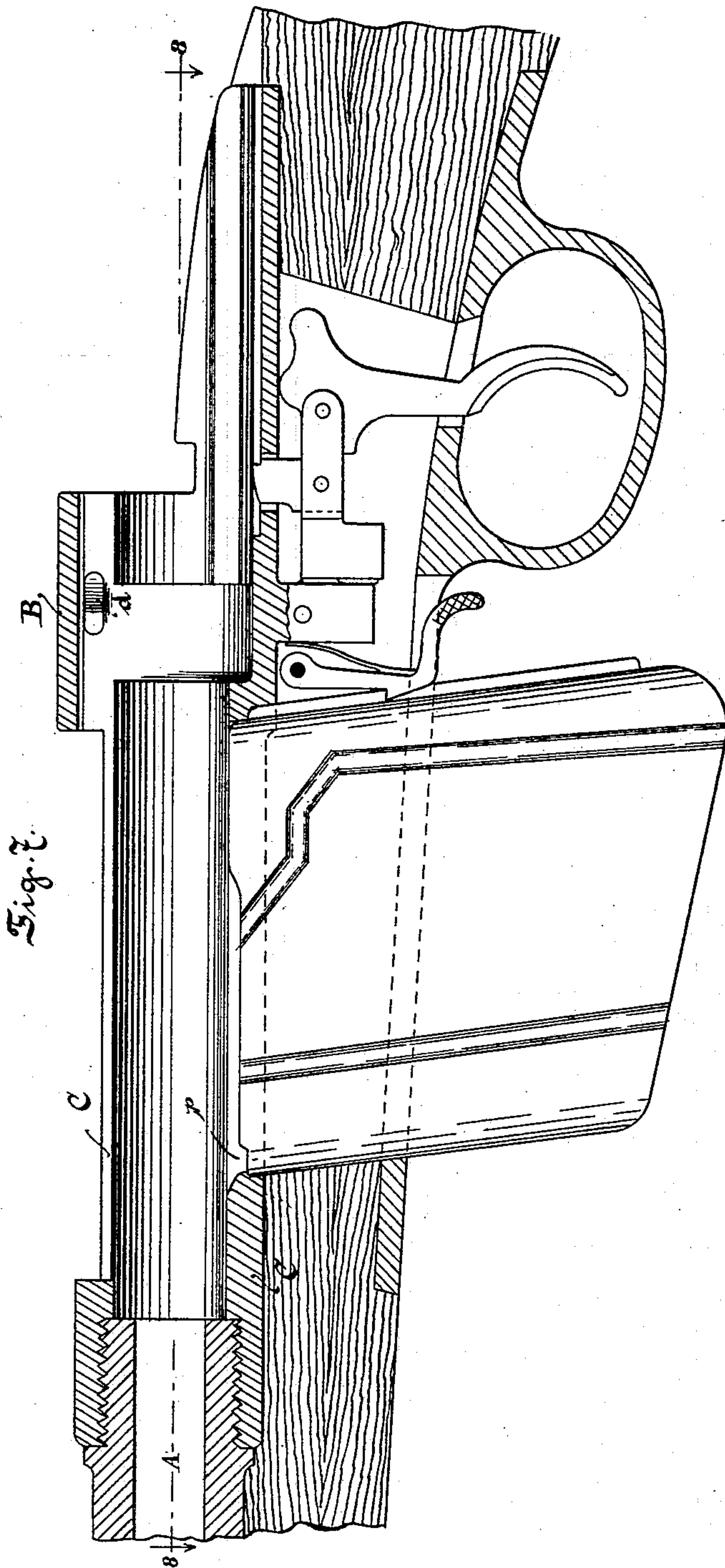
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P. MAUSER.
BREECH LOADING FIRE ARM.

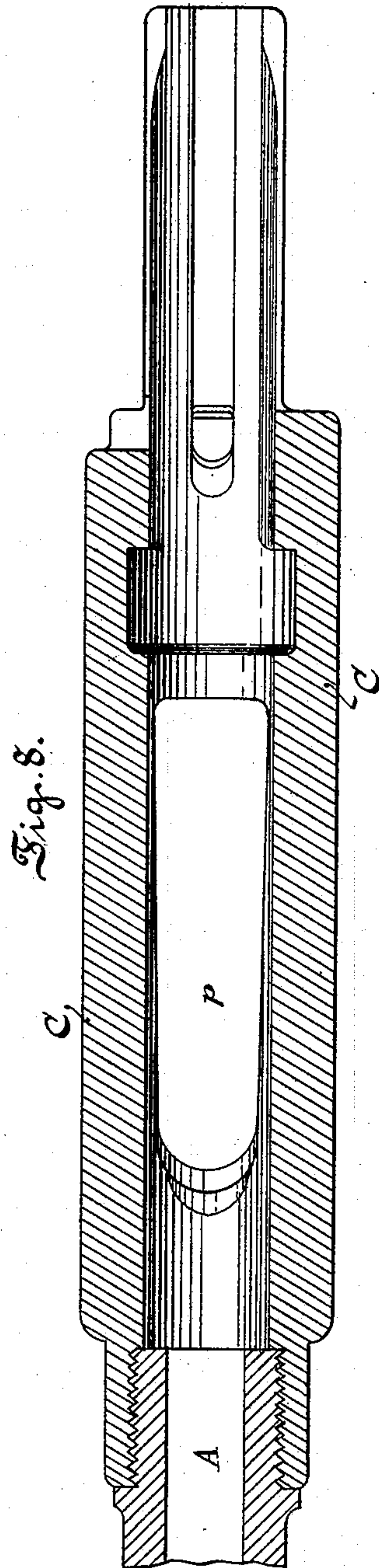
No. 406,924.

Patented July 16, 1889.



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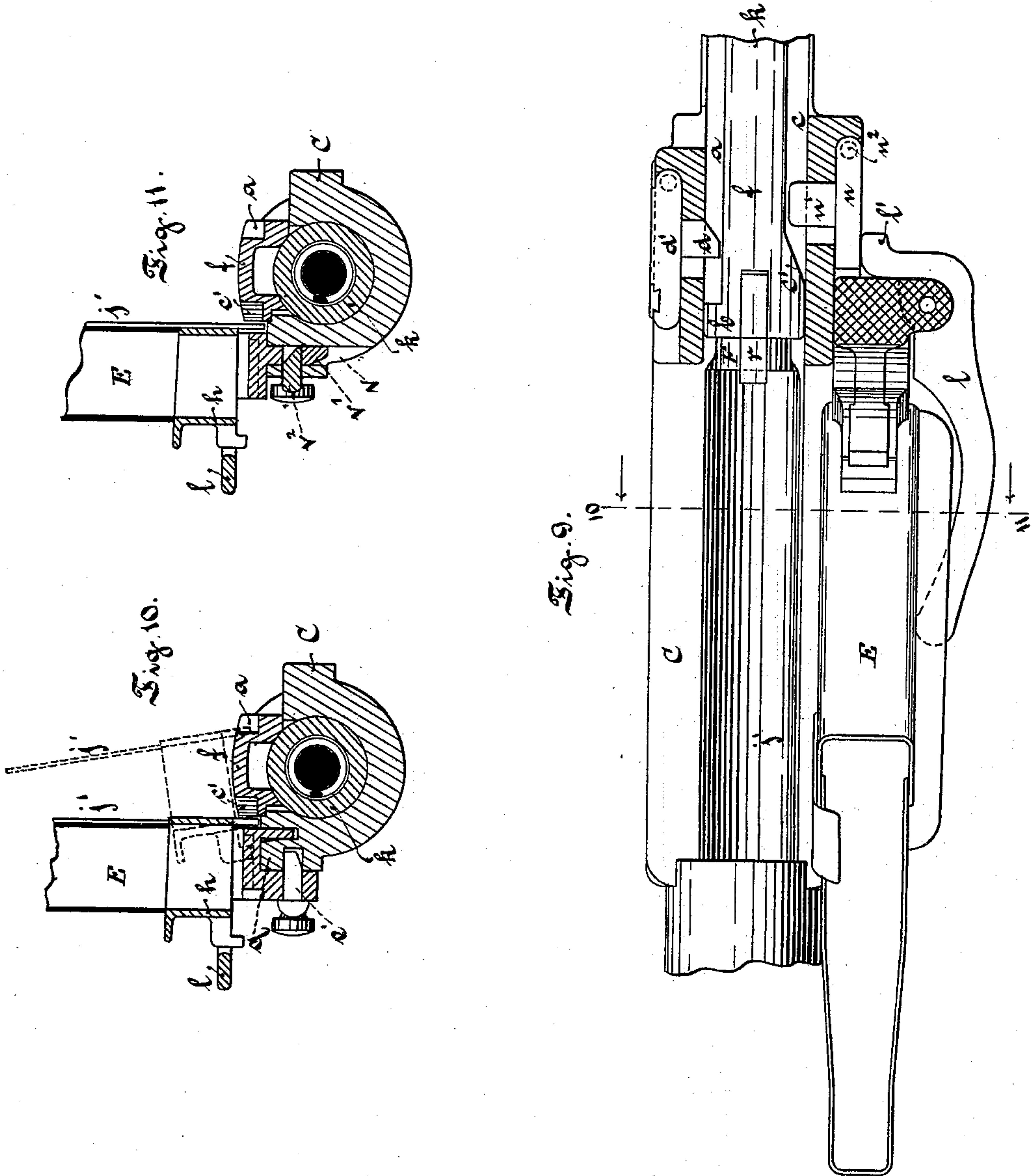
(No Model.)

3 Sheets—Sheet 3.

P. MAUSER.
BREECH LOADING FIRE ARM.

No. 406,924.

Patented July 16, 1889.



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UNITED STATES PATENT OFFICE.

PAUL MAUSER, OF OBERNDORF-ON-THE-NECKAR, WÜRTTEMBERG, GERMANY,
ASSIGNOR TO THE WAFFENFABRIK MAUSER, OF SAME PLACE.

BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 406,924, dated July 16, 1889.

Application filed June 30, 1888. Serial No. 278,657. (No model.) Patented in Germany March 2, 1888, No. 44,323; in Belgium March 9, 1888, No. 80,938; in Italy March 31, 1888, No. 23,202; in England April 16, 1888, No. 5,641, and in Spain June 12, 1888, No. 8,053.

To all whom it may concern:

Be it known that I, PAUL MAUSER, manufacturer, a resident of Oberndorf-on-the-Neckar, in the Kingdom of Württemberg, German Empire, and a subject of the King of Württemberg, German Empire, have invented certain new and useful Improvements in Breech-Loading Fire-Arms, (which are the subject of Letters Patent in Germany, No. 44,323, dated March 2, 1888; in Belgium, No. 80,938, dated March 9, 1888; in Italy, No. 23,202/477, dated March 31, 1888; in Spain, No. 8,053, dated June 12, 1888, and in England, No. 5,641, dated April 16, 1888,) of which the following is a specification.

This invention relates to breech-loading fire-arms having a cylinder-bolt, which are known as "bolt-guns."

The invention pertains especially to the ejector for throwing out the empty shells and to means for applying and operating a detachable cartridge-magazine to be applied either on top of or beneath the breech-case of the gun. Such a detachable magazine designed to be applied above the breech-case is fully shown in my application, Serial No. 258,818, patented June 5, 1888, No. 383,895. A detachable cartridge-magazine to be applied beneath the breech-case is also well known—for example, in the Lee magazine-gun.

Figure 1 of the accompanying drawings is a side elevation of the breech portion of the breech-case of a gun embodying my invention, looking from the left. Fig. 2 is a vertical transverse section thereof cut in the plane of the line 2 2 in Fig. 1. Fig. 3 is a similar transverse section cut in the plane of the line 3 3 in Fig. 1. Fig. 4 is a sectional plan view cut in the plane of the lines 4 5 in Figs. 1 and 3. Fig. 5 is a similar sectional plan, the breech-case being cut in the same plane, but the bolt-head being in elevation. Fig. 6 is a plan of the gun, partly in section, on the line 6 6 in Figs. 1 and 3. Fig. 7 is a vertical longitudinal mid-section of the breech portion of the gun with the bolt withdrawn, showing the application of a Lee magazine beneath the breech. Fig. 8 is a horizontal longitudinal mid-section of the breech-case cut on the line

8 8 in Fig. 7. Fig. 9 is a plan of the breech portion of the gun, partly in section, on the same plane as Fig. 6, and showing a detachable cartridge-magazine applied to the gun. Figs. 10 and 11 are transverse sections cut on the line 10 11 in Fig. 9, and showing two different means for attaching the magazine to the gun.

In Figs. 1, 2, 3, 7, and 8 the bolt is entirely withdrawn. In Fig. 4 the bolt is shown partly drawn back, and in Figs. 5 and 6 it is shown fully drawn back.

Let A in Figs. 6, 7, and 8 designate the barrel, and C in the several figures designate the breech-case of the gun.

D is the bolt.

F is the bolt-head, and *f* is a longitudinally-moving slide or guide plate, which partakes of the longitudinal movement of the bolt, but not of its oscillatory movement. The bolt-head in the construction shown is attached to or formed in one piece with the guide-plate *f*.

The bolt B is provided, as usual, with a locking-lever, (not shown,) which, when it is pushed fully forward, is oscillated about a quarter-revolution, in order to lock it firmly in position ready for firing. In order to lock the bolt, it is provided near its rear end with recoil shoulders or projections, which as the bolt is oscillated enter corresponding recesses in the breech-case C. These parts are not shown, as they are not essential to my present invention.

The construction of the bolt-head, guide-plate *f*, and other coacting parts will be found fully illustrated and described in another application of mine executed simultaneously herewith, designated Case A, application No. 278,321, filed June 27, 1888.

T is the trigger, and *l* the trigger-beak.

S in Fig. 5 indicates an empty cartridge-shell in the act of being thrown out.

The extractor is shown at *r* in Figs. 5 and 6, and the ejector is shown at *g* in Figs. 1 to 5.

The guide-plate *f* slides between the walls of the breech-case on the top thereof and beneath the bridge B, that forms a part of the rear portion of the breech-case. When the

bolt is pushed forward, the plate *f* closes the breech-case opening and prevents access of dust to the cartridge-rest. In drawing back the bolt it is stopped by the abutting of a shoulder *b* at the front of the guide-plate *f* against a stop-tooth *d* on a lever *d'*, which tooth projects into a longitudinal groove *a* in the guide-plate, all as clearly shown in Fig. 6.

So far as described the parts are either known or are covered by other applications for patents made by me.

When a gun of this type is intended to be used as a magazine-gun, and for this purpose a temporary magazine is to be attached to it, it is necessary to alter some parts of the gun. The usual cartridge-expeller at the bottom of the cartridge must be removed in order to enable an opening to be made for the application of a cartridge-magazine from beneath; and when a magazine is mounted on top of the breech-case some device must be provided for communicating motion from some part of the gun to the magazine, so that it shall feed a fresh cartridge to the gun at the proper instant. The accompanying drawings show a construction and arrangement of parts adapted either for a magazine on top of the breech-case similar to that shown in my said application, Serial No. 258,818, or for applying a magazine from below after the manner of the Lee gun.

The cartridge-ejector consists of a flat piece of steel *g*, formed with a nose *g'* and fixed on an axial pivot-pin or pintle *g²*. The ejector works in a corresponding hole in the left-hand wall of the breech-case *C*, about level with the axis of the barrel of the gun. The pintle *g²* turns in a vertical hole formed in the breech-case, as shown in Fig. 2. At one place the pintle is flattened, as shown in Fig. 4, and is pressed against by a flat spring or spring-arm *m*, which is fastened to the outside of the breech-case and acts upon the flattened portion of the pintle to press the ejector inwardly, so that its nose *g'* projects into the bore of the breech-case. This can occur, however, only when the bolt is drawn back, as shown in Fig. 5. The bolt-head *F* is formed with a notch or recess *g³*, having an inclined bottom, which recess is arranged in the plane of the ejector *g*, so that as the bolt is pushed forward the nose *g'* of the ejector enters this recess. As the bolt is pushed forward the inclined bottom of this recess acts on the nose *g'* and pushes it back, as shown in Fig. 4, thereby oscillating the pintle *g²* and compressing the spring *m*. As the bolt is pushed fully forward, the bolt-head *F* passes beyond the nose *g'* and the latter rests with but little friction against the side of the bolt proper *D*. The recess *g³* is deepest at the front of the bolt-head. It will be understood that the bolt-head *F*, being in one piece with the guide-plate *f*, is restrained from turning, so that the recess *g³* remains always in the same plane as the ejector *g*.

After firing the gun the drawing back of

the bolt extracts the empty shell by the rim thereof being caught by the claw *r*, and after the shell is entirely withdrawn from the barrel its base encounters the ejector-nose *g'*, which meanwhile has been moving out into the recess *g³*, and at this time protrudes about five to eight millimeters into the bore of the breech-case, as shown in Fig. 5. By striking the ejector the base of the shell is thus stopped, while the drawing back of the bolt continues, so that the top rim of the shell is pulled back forcibly, while its side is stopped by the ejector-nose, so that the shell is whirled around the claw and thrown out at the top through the case-opening. By this construction of ejector the portion of the bore of the breech-case constituting the cartridge-rest is left smooth and without grooves, so that the lower part of it may be cut through, as shown at *p* in Figs. 6, 7, and 8, for the insertion of a cartridge-magazine of the Lee type, the detail construction of which is so well known that a description is deemed unnecessary.

When a cartridge-magazine is to be used which is applied on top of the breech-case, the top face of the left-hand wall of the breech-case *C* is formed with holes or mortises *v v* for the reception of corresponding tenons on the magazine-frame. In this case the magazine may be constructed as shown in Figs. 7, 8, and 9 of my said application, Serial No. 258,818, Patent No. 383,895. This construction is shown in Fig. 11 of the accompanying drawings, where *v* is one of the mortises, and *v'* is a tenon on the magazine-frame, which enters this mortise and is fastened therein by a spring-latch *v²*. Fig. 10 shows another method of attaching the magazine, which corresponds to that shown in Fig. 4 of my said previous application. In this case the bottom of the magazine-frame has two flanges, which embrace between them the wall *q* of the breech-case, and are held thereto by a spring bolt or catch *e'*.

The magazine consists of a cartridge case or box *E*, rigidly attached to the magazine-frame and arranged to one side of the cartridge-rest in the breech of the gun, and a movable carrier *h*, mounted on leaf-springs *j'*, which hold it normally in line with the box *E*, but admit of its being swung out over the cartridge-rest. This displacement of the carrier *h* is effected by the vibration of a lever *l*, which is pivoted to the magazine-frame. In Fig. 6 the normal position of the carrier *h* is shown by the dotted lines *h'*, and its displaced position for dropping the cartridge into the breech-case of the gun is shown by the lines *h''*. The normal position of the lever *l* is shown by the dotted lines *i'*, and its displaced position for feeding the cartridge by the dotted lines *i''*. For a full description and illustration of the details of construction of this detachable magazine (which are immaterial to my present invention) reference may be had to my said previous appli-

cation, Patent No. 383,895. The only alteration due to my present invention is in the shape of the short arm l' of this lever, which is clearly shown in Fig. 9. The means for setting the elbow-lever l' in motion at the proper time, and which pertains solely to the gun itself and not to the detachable magazine, is also altered, as I will proceed to describe.

On the left-hand side of the guide-plate f a groove or recess c is milled out, terminating at the front end in a sloping shoulder or cam-face c' . To the left-hand wall of the breech-case C is pivoted a lever n , having a projecting tooth n' , which enters through a slot in the wall of the breech-case, as shown in Fig. 3, and projects into the groove c . The pintle n^2 of this lever n turns in a vertical hole in the breech-case and is flattened at one place, and against its flattened portion a spring or spring-arm m' is arranged to press. Thus the lever n is normally pressed inwardly, with its tooth n' entering the groove c .

During the greater part of the back-stroke of the bolt, and hence of the guide-plate f , the tooth n' remains in the groove c and is not acted upon; but at near the end of the stroke the inclined shoulder c' encounters this tooth and forces it outwardly, and thereby swings out the push-lever n , as shown in Fig. 6. As soon as the bolt D is pushed forward again the push-lever n is returned to its normal position by the action of the spring m' against the flattened face of the pintle n^2 . So long as the cartridge-magazine is not applied to the gun these movements of the lever n are idle. When, however, the magazine is applied, the short arm l' of its lever l comes against the end of the lever n , as shown in Fig. 9. Then upon the retraction of the bolt the outward displacement of the lever n is communicated thereby to the lever l , as shown in Fig. 6, so that the latter is rocked to the position shown at i'' and the cartridge-carrier h is swung over from the position h' to the position h'' , thereby feeding a cartridge to the gun. Upon pushing forward the bolt again the lever n is returned to its normal position by means of its spring, and the lever l is restored by the return of the cartridge-carrier h to its normal position under the tension of its leaf-springs j' .

Thus my improved bolt-gun, while normally a single-loader, can be converted instantaneously into a magazine-gun according to either of two different systems. When the gun is in use as a single-loader, the movements of the lever n are unobjectionable. My invention is not confined to the use of the particular construction of magazine shown, which is itself old, but may be applied with any construction of magazine which is adapted to co-operate with the lever n in order to utilize the movement thereof for operating the cartridge-feed.

Preferably the two springs m and m' are

made in one piece and fastened by a single screw at their middle, as shown; but this is not essential.

I claim as my invention the following-defined improvements in fire-arms of the class known as bolt-guns, the same being substantially as hereinabove specified, viz:

1. The combination, with the breech-case, the oscillatory bolt, and the non-rotative bolt-head formed with a recess in one side thereof, and the shell-extractor carried by the bolt-head on the top thereof, of an ejector pivoted in the side of the breech-case and in the same plane with said recess, and a spring for pressing said ejector inwardly, so that on the retraction of the bolt its nose shall enter said recess and encounter the side of the base of the receding cartridge-shell.

2. The combination, with the breech-case and bolt, the non-rotative bolt-head F , formed with a recess g^3 , having a sloping bottom, and the shell-extracting claw r , carried by said bolt-head, of an ejector g , pivoted to the breech-case, with its nose in the same plane as said recess, and a spring for pressing the ejector inwardly.

3. The combination, with the breech-case and bolt, of an ejector having a pintle fixed to it, which pintle is flattened on one side and has bearings in the breech-case, and a spring pressing against the flattened portion of said pintle, and thereby tending to project the nose of the ejector into the bore of the breech-case.

4. The combination of the detachable magazine having an operating-lever with a bolt-gun adapted for the attachment of said magazine, and having a guide-plate connected to and moving longitudinally with its bolt, and an inclined shoulder or cam-face on said guide-plate, and adapted upon the extreme retraction of the guide-plate to effect the displacement of said operating-lever, and thereby cause the delivery of a cartridge to the breech of the gun.

5. The combination of the detachable magazine having an operating-lever with a bolt-gun adapted for the attachment of said magazine, and having a guide-plate connected to and moving longitudinally with its bolt, and an inclined shoulder or cam-face on said guide-plate, and a push-lever pivoted to the gun in a position intervening, when the bolt is retracted, between the said inclined face and the operating-lever of the magazine, and adapted to transmit the movement of said inclined face to said operating-lever, and thereby to displace the latter and operate the magazine.

6. In a bolt-gun, the construction of the breech-case with the portion of its bore forming the cartridge-rest unobstructed at its bottom, and with an opening formed therein adapted for the attachment of a cartridge-magazine from beneath, in combination with a bolt and a guide-plate mounted to slide lon-

gitudinally over the opening in the top of the breech-case and connected to the bolt, so as to be moved longitudinally thereby.

7. In a bolt-gun, the construction of the
5 breech-case with an opening *p* in its bottom for the insertion of a cartridge-magazine from beneath, in combination with the bolt, a shell-extractor carried by the bolt-head, and
10 an ejector mounted in the side of the breech-case, and a spring for pressing said ejector

inwardly, so that its nose shall enter the bore of the breech-case, whereby the bottom of the cartridge-rest is left unobstructed.

This specification signed by me this 3d day of February, 1888.

PAUL MAUSER.

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