

(No Model.)

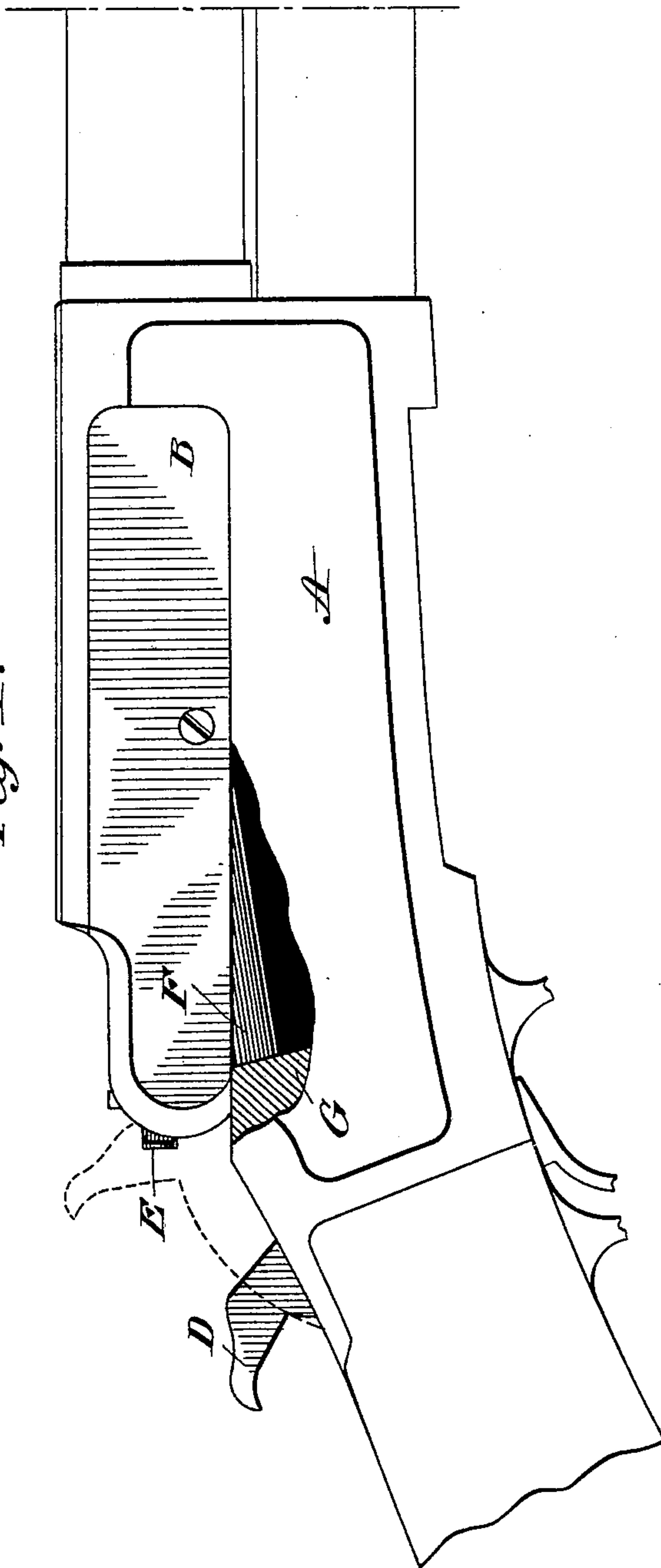
2 Sheets—Sheet 1.

L. L. HEPBURN.
SAFETY DEVICE FOR BOLT GUNS.

No. 591,220.

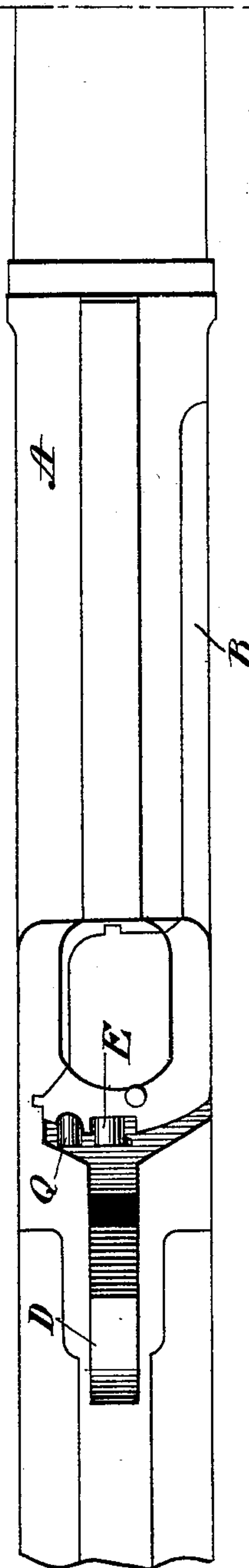
Patented Oct. 5, 1897.

Fig. 1.



WITNESSES:
Frank S. Ober
James S. Conaldt.

Fig. 2.



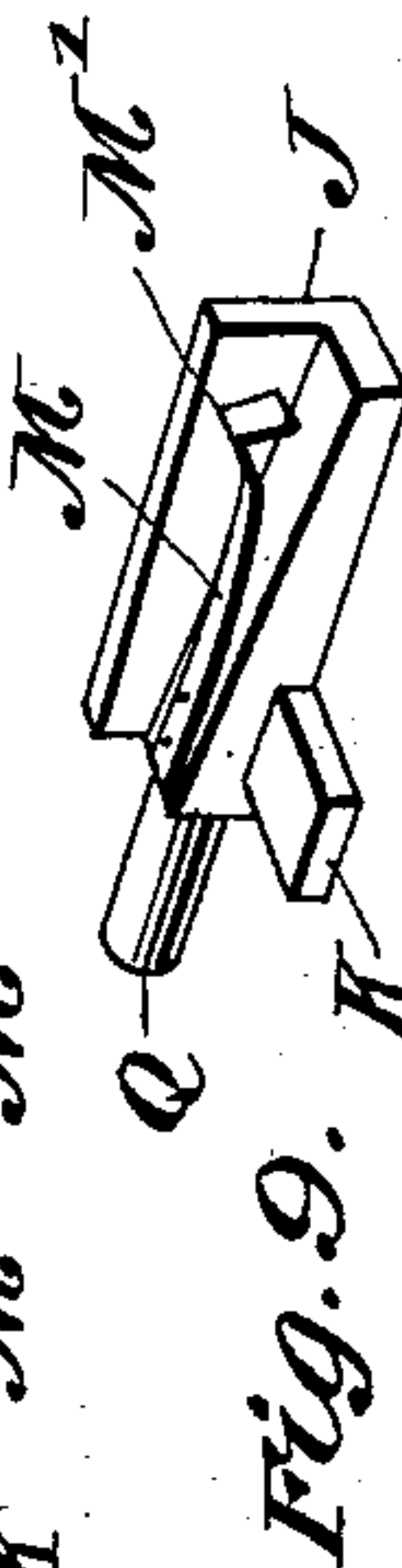
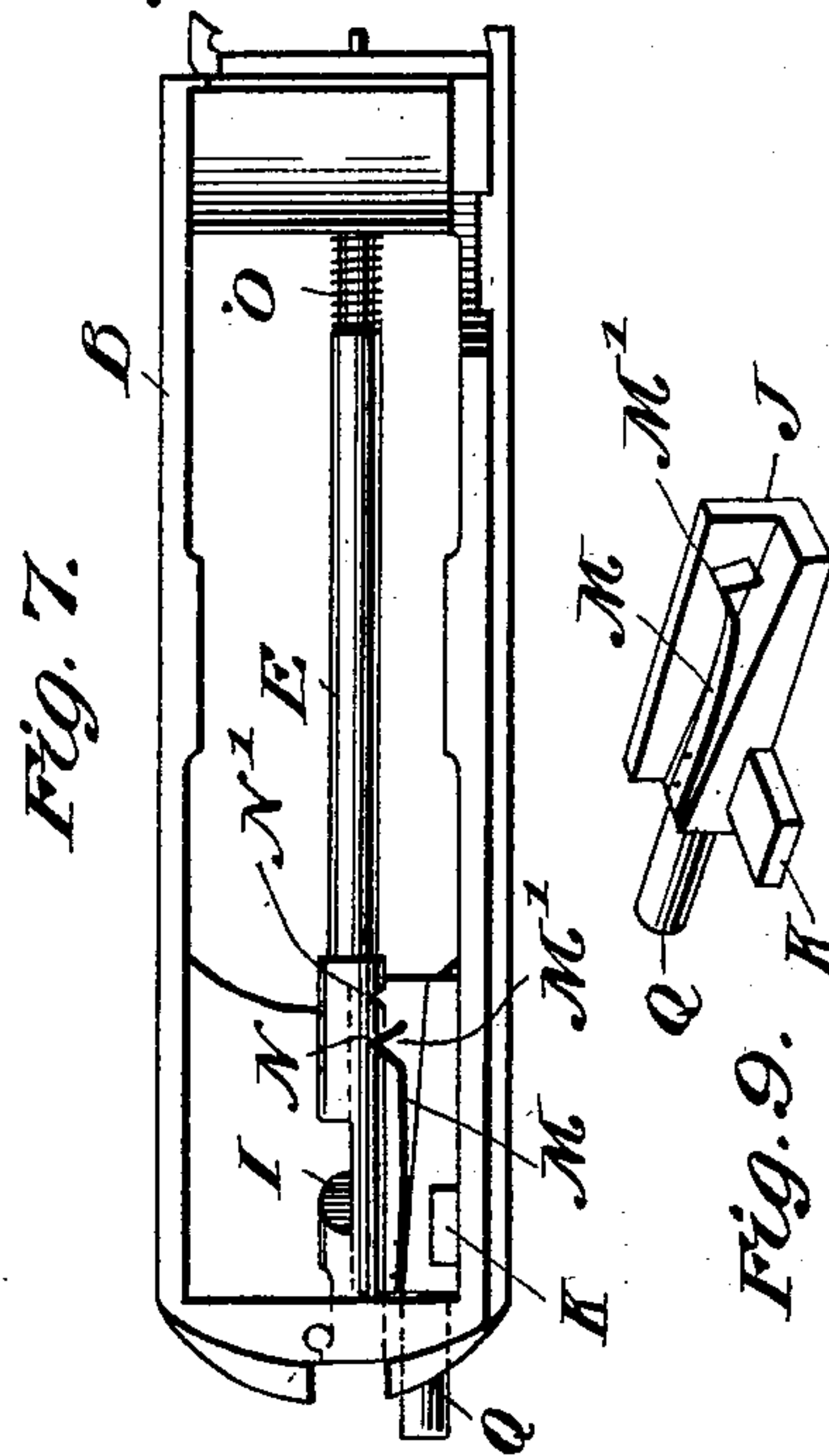
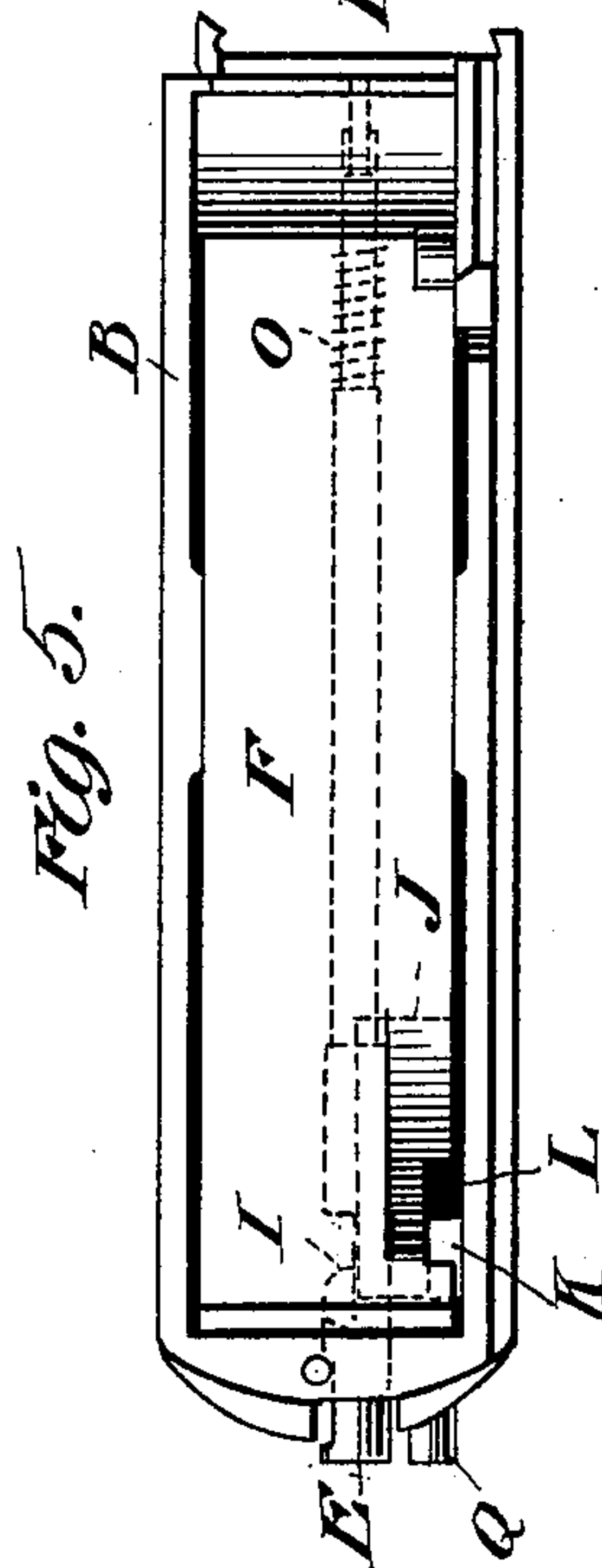
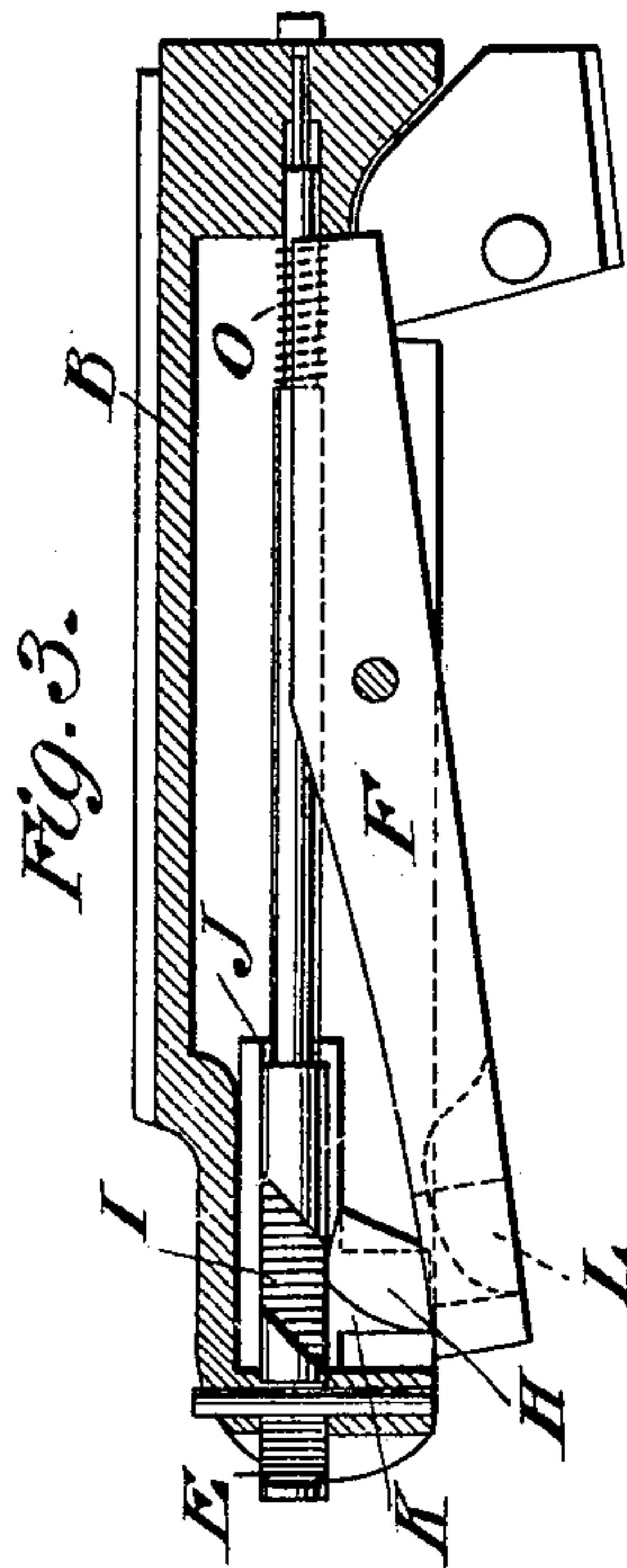
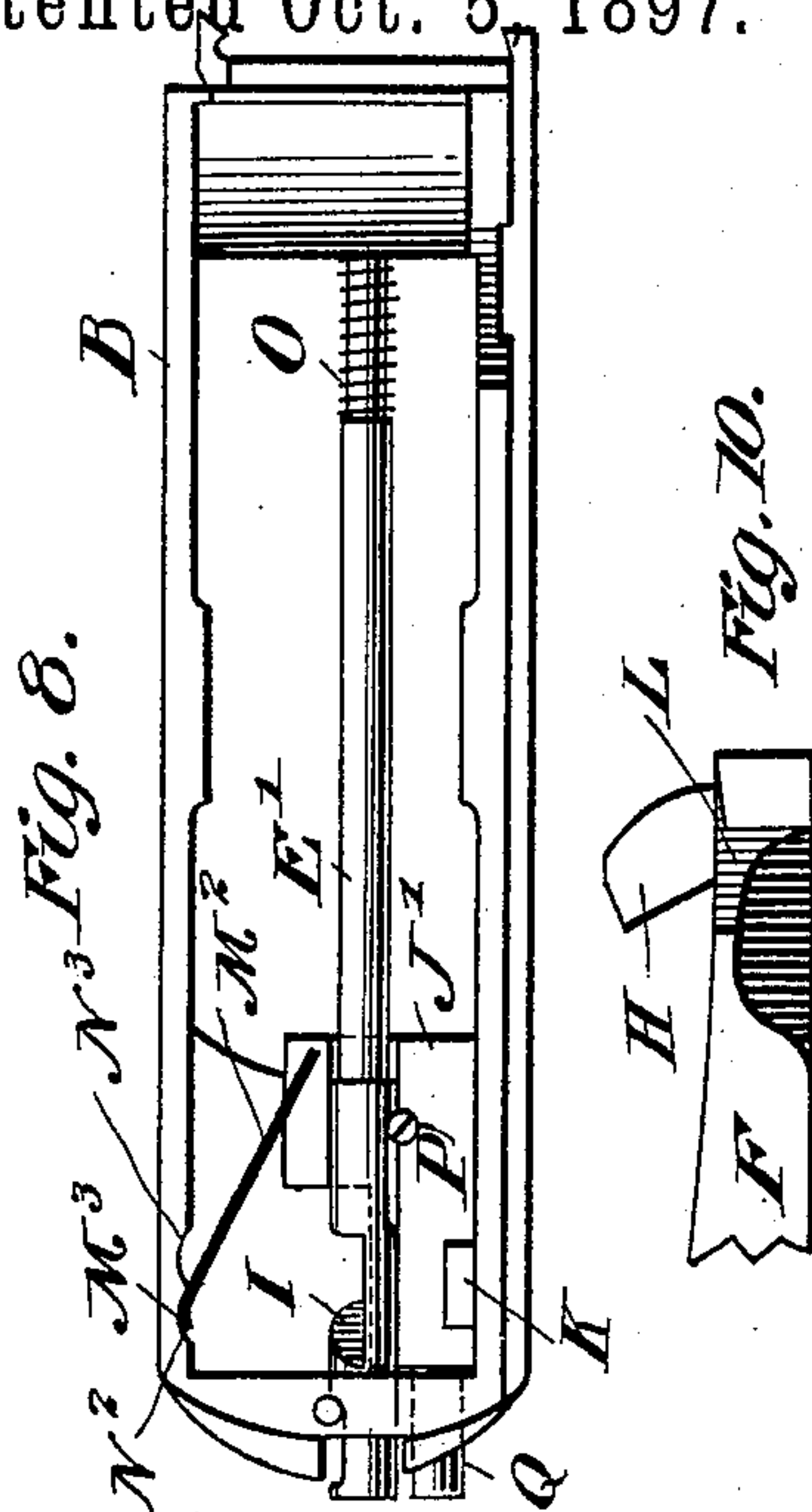
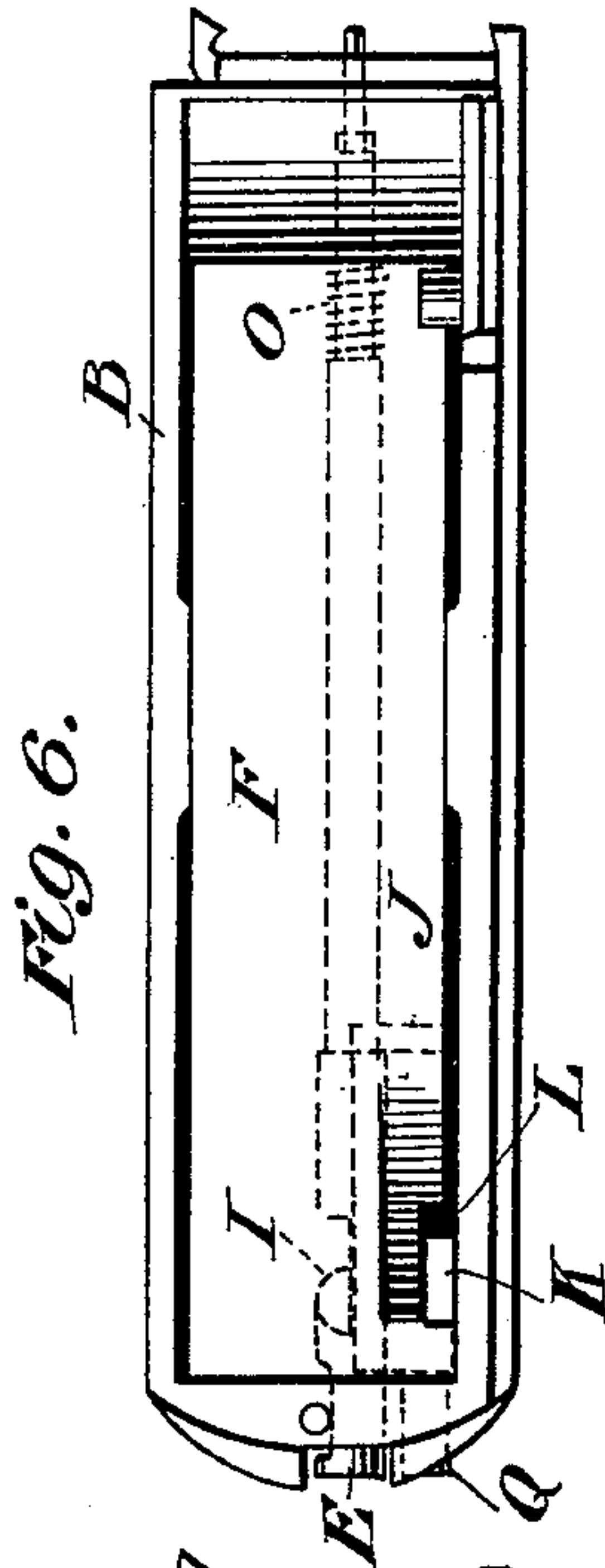
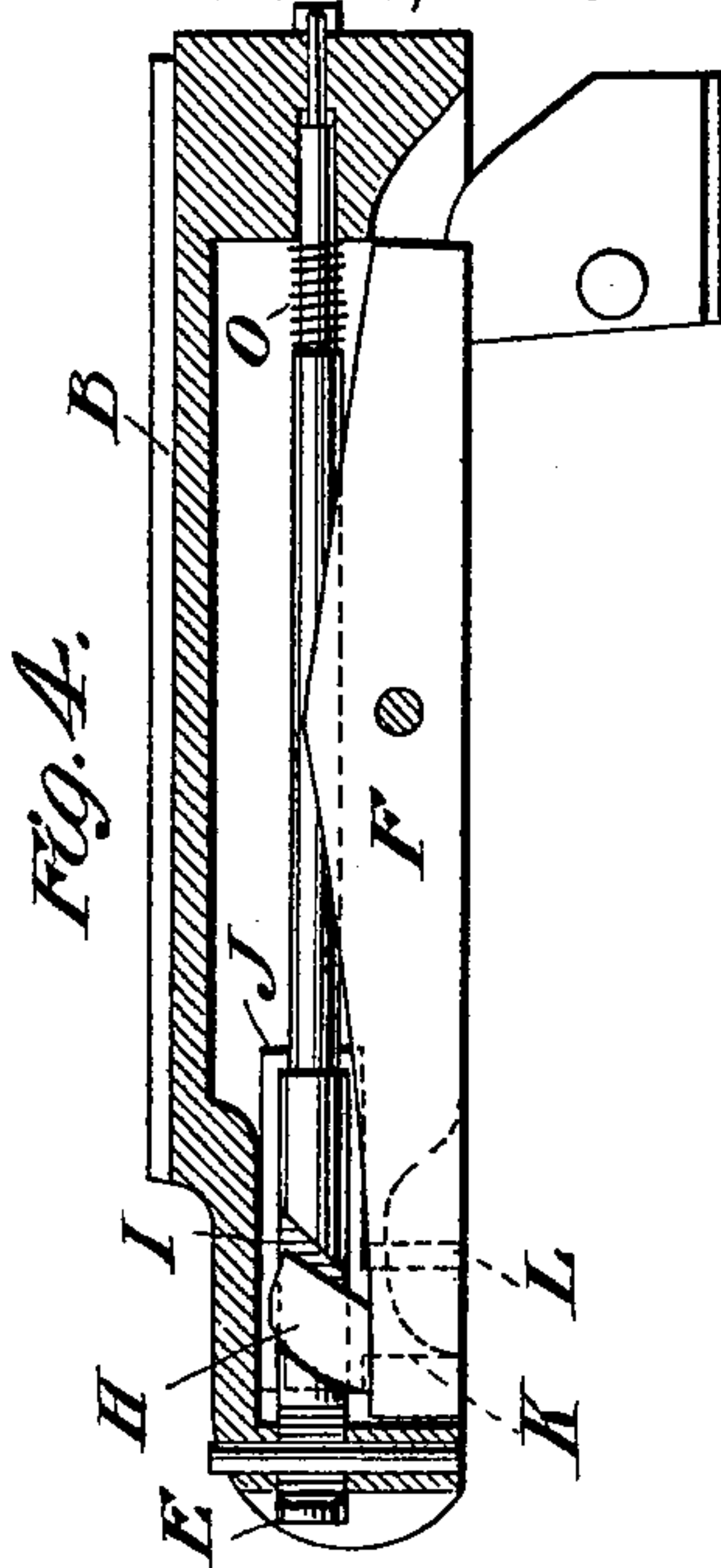
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L. L. HEPBURN.
SAFETY DEVICE FOR BOLT GUNS.

No. 591,220.

Patented Oct. 5, 1897.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LEWIS L. HEPBURN, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE
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SAFETY DEVICE FOR BOLT-GUNS.

SPECIFICATION forming part of Letters Patent No. 591,220, dated October 5, 1897.

Application filed May 17, 1897. Serial No. 636,891. (No model.)

To all whom it may concern:

Be it known that I, LEWIS L. HEPBURN, a citizen of the United States, residing in New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Repeating Firearms, of which the following is a full, clear, and exact specification.

My invention relates to improvements in repeating firearms, particularly of that class in which there is provided a reciprocating breech-bolt, one example of which may be found in my earlier United States patent, No. 528,905, dated November 6, 1894.

The main object of this invention is to provide a simple, inexpensive, and effective means to prevent the accidental premature unlocking or opening of the breech mechanism in the interval between the falling of the hammer and the explosion of the cartridge.

My invention is illustrated by the accompanying drawings, in which—

Figure 1 is a side elevation of the breech or receiver portion of a firearm containing my invention. Fig. 2 is a plan view of Fig. 1. Figs. 3 and 4 are each vertical longitudinal sections through the center of the breech-bolt, said figures illustrating different positions of the mechanical parts thereof, including the locking-bolt. Figs. 5 and 6 are respectively projected views of the under side of Figs. 3 and 4. Figs. 7 and 8 are each views of the under side of the breech-bolt, the locking-bolt being removed, Fig. 8 illustrating a modification. Figs. 9 and 10 are views of details.

The principal parts of the breech mechanism in one form of firearm to which my invention is applicable may be described as follows:

A is the receiver portion of a firearm.

B is a reciprocating breech-bolt.

D is a hammer.

E is a firing-pin.

F is a locking-bolt carried by the breech-bolt and adapted, when the parts are in firing position, to be tilted so that its rear end rests against a suitable abutment G in the frame of the receiver, Fig. 1, to prevent the blowing out of the breech-bolt by the force of an exploding cartridge.

H is a horn carried by the locking-bolt and registering with a recess I in the side of the firing-pin when the latter is in its forward position, Fig. 4.

When the parts are in position for firing, the firing-pin, being in its retracted position, projects over the horn H, Fig. 3, preventing the tilting of the locking-bolt until the firing-pin has been moved into its forward position.

A description of the parts thus far referred to may be found more in detail in my former United States Letters Patent, No. 528,905 of November 6, 1894.

As it sometimes happens in the case of slow-burning powder that the cartridge hangs fire and does not explode at the drop of the hammer, it is important that a suitable means be provided to prevent the accidental unlocking of the breech mechanism until the cartridge has exploded, and I therefore provide a supplemental safety device, constructed and operated substantially as follows:

J is a longitudinally-reciprocating locking-block carried adjacent to the firing-pin and preferably within the breech-bolt B.

K is a downwardly-projecting shoulder thereon adapted, when the parts are in the position indicated in Figs. 1, 2, 3, 5, and 7, to project over the locking-bolt, as shown, and prevent the latter from being tilted.

When the firing-pin is advanced and the gun discharged, the recoil occasioned when the cartridge explodes is sufficient to cause the block J to advance from the position shown in Fig. 7 into the position indicated in Figs. 4 and 6, in which position the shoulder K registers with a suitable opening or recess L, Fig. 10, in the locking-bolt F, so that the latter may be readily tilted into the unlocked position to permit the breech-bolt to be retracted.

The block J has two relative positions with respect to the locking-bolt F—a rearward locked position and a forward unlocked position, (see Figs. 3 and 4,) respectively.

M is a retaining-spring, the same being preferably carried by the block J, the free end of said spring being provided with a nose M', having beveled faces, preferably adapted to rest in notches N N' in the side of the firing-pin E. The frictional engagement afforded

by said spring bearing in the notch N is sufficient to hold the block J in the retracted position, Fig. 7, with respect to the firing-pin and the locking-bolt F until the explosion and its attending recoil.

In the modification shown in Fig. 8 the nose M³ at the free end of the spring M² frictionally bears in suitable notches N² N³ in the inner wall of the breech-bolt B' instead of against the firing-pin, as previously described.

P is a stop carried by the block J' and projecting into a slot or recess in the side of the firing-pin E', being one means by which the independent longitudinal movement of said parts is limited.

In operation a cartridge is inserted into the barrel and the parts locked, as shown in Figs. 1, 2, 3, and 5. The hammer D upon being released strikes the firing-pin E, forcing it ahead into the position indicated in Fig. 7, the quick advance of the firing-pin leaving the locking-block J in its original retracted operative position, where it prevents the unlocking of the breech mechanism until the cartridge explodes. When the cartridge does explode, the recoil of the gun shifts the block J from its retracted position into that shown in Figs. 4 and 6, thereby unlocking the locking-bolt F, as previously described. As soon as another cartridge has been inserted into the barrel by the reciprocation of the breech mechanism the retracting-spring O moves the firing-pin back into its original position, and the rearward movement of the firing-pin returns the block J to its rearward position, Figs. 3 and 5, again locking the parts.

In the modification instead of providing a frictional engagement between the block J' and the firing-pin E' for returning the block J' to the locking position I provide a positive means, the same being the stop P, which bears against the shoulder at the forward end of the slot or recess in the side of the firing-pin E' when both of said parts are in their forward position.

If desirable, the block J may have a nose Q, projecting through an opening in the rear of the breech-bolt B to one side of the firing-pin and out of the path of movement of the hammer, so that should the cartridge fail to explode the operator may unlock the locking-bolt F by pressing the nose Q ahead, thereby manually forcing the supplemental locking-block J from the position shown in Fig. 7 into the forward inoperative position, Figs. 4 and 6.

In carrying out my invention it may be desirable to make certain changes in the construction and arrangement of the parts thereof, and I therefore do not limit myself to the specific construction and arrangement described, but hold myself at liberty to make such alterations and changes as are fairly within the spirit and scope of my invention.

What I claim is—

1. In a repeating firearm, a supplemental locking device, comprising a loosely-mounted sliding block, free to have limited longitudinal

movement, and actuated in one direction by the recoil of the gun, said block when in its rearward position projecting into the path of movement of one of the operative parts of the breech-locking mechanism and thereby locking the breech-bolt.

2. In a repeating firearm, a locking-bolt, a supplemental locking means therefor, the latter comprising a sliding block having limited longitudinal movement in line with the barrel and actuated in one direction by the recoil of the gun, said block when in its rearward position projecting into the path of movement of said locking-bolt to prevent movement of the latter.

3. In a repeating firearm, a reciprocating breech-bolt, a locking-bolt, a supplemental locking means carried within said breech-bolt, comprising a loosely-mounted sliding block having limited independent movement in line with the barrel, said block when in its rearward position projecting into the path of movement of said locking-bolt to prevent movement of the latter.

4. In a repeating firearm, a reciprocating breech-bolt, a locking-bolt carried thereby, a supplemental locking means, comprising a loosely-mounted sliding block located within said breech-bolt, and having limited longitudinal movement with respect thereto and actuated in one direction by the recoil of the gun, said block when in its rearward position projecting into the path of movement of said locking-bolt to prevent movement of the latter.

5. In a repeating firearm, a reciprocating breech-bolt, a tilting locking-bolt carried thereby, a supplemental locking means comprising a block carried within said breech-bolt, and having limited independent longitudinal movement with respect thereto, frictional retaining means therefor, said block when in its rearward position projecting into the path of movement of said locking-bolt to prevent movement of the same.

6. In a repeating firearm, a reciprocating breech-bolt, a firing-pin carried thereby, and a tilting locking-bolt, a supplemental locking means for said locking-bolt, comprising a longitudinally-movable block carried within said breech-bolt, means for limiting the longitudinal movement of said block with respect to said bolt, a spring carried thereby, the free end of said spring bearing in suitable notches, said block when in its rearward position projecting into the path of movement of said locking-bolt to prevent the tilting of the same.

7. In a repeating firearm, a reciprocating breech-bolt, a tilting locking-bolt and a firing-pin carried thereby, and a supplemental locking means for said locking-bolt, comprising a block having limited independent longitudinal movement with respect to the adjacent parts, a spring carried by said block, the free end of said spring frictionally bearing in suitable notches in the side of said firing-pin, said block when in its rearward position project-

ing into the path of movement of said locking-bolt, to prevent the movement of the same.

5 8. In a repeating firearm, a supplemental locking device, comprising a loosely-mounted sliding block, free to have limited longitudinal movement in the line of the barrel and actuated in one direction by the recoil of the gun, said block when in its rearward position

projecting into the path of movement of the locking-bolt, a nose on said block projecting through an opening, whereby said block may be manually operated.

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Witnesses:

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LILLIE VREELAND.