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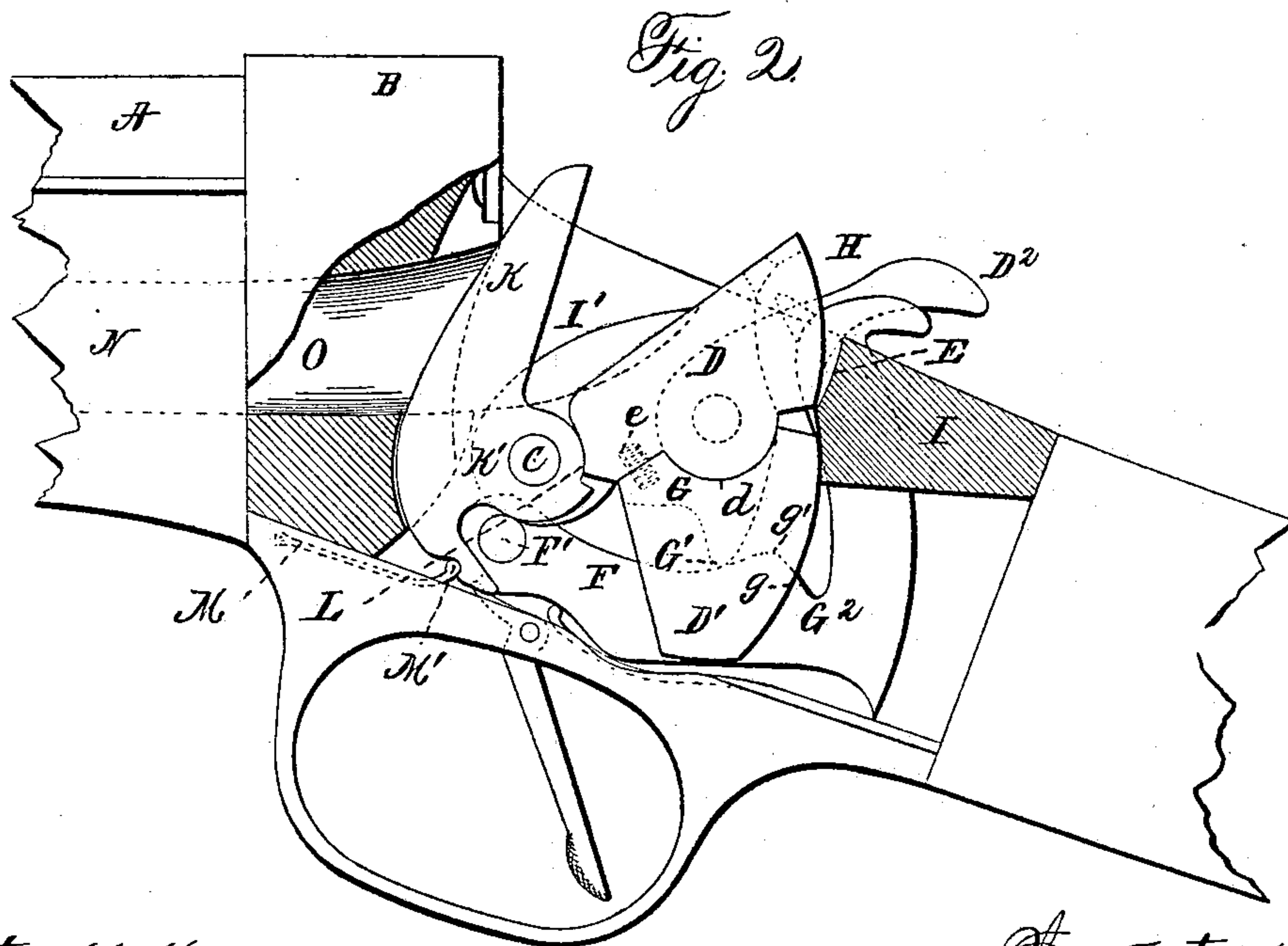
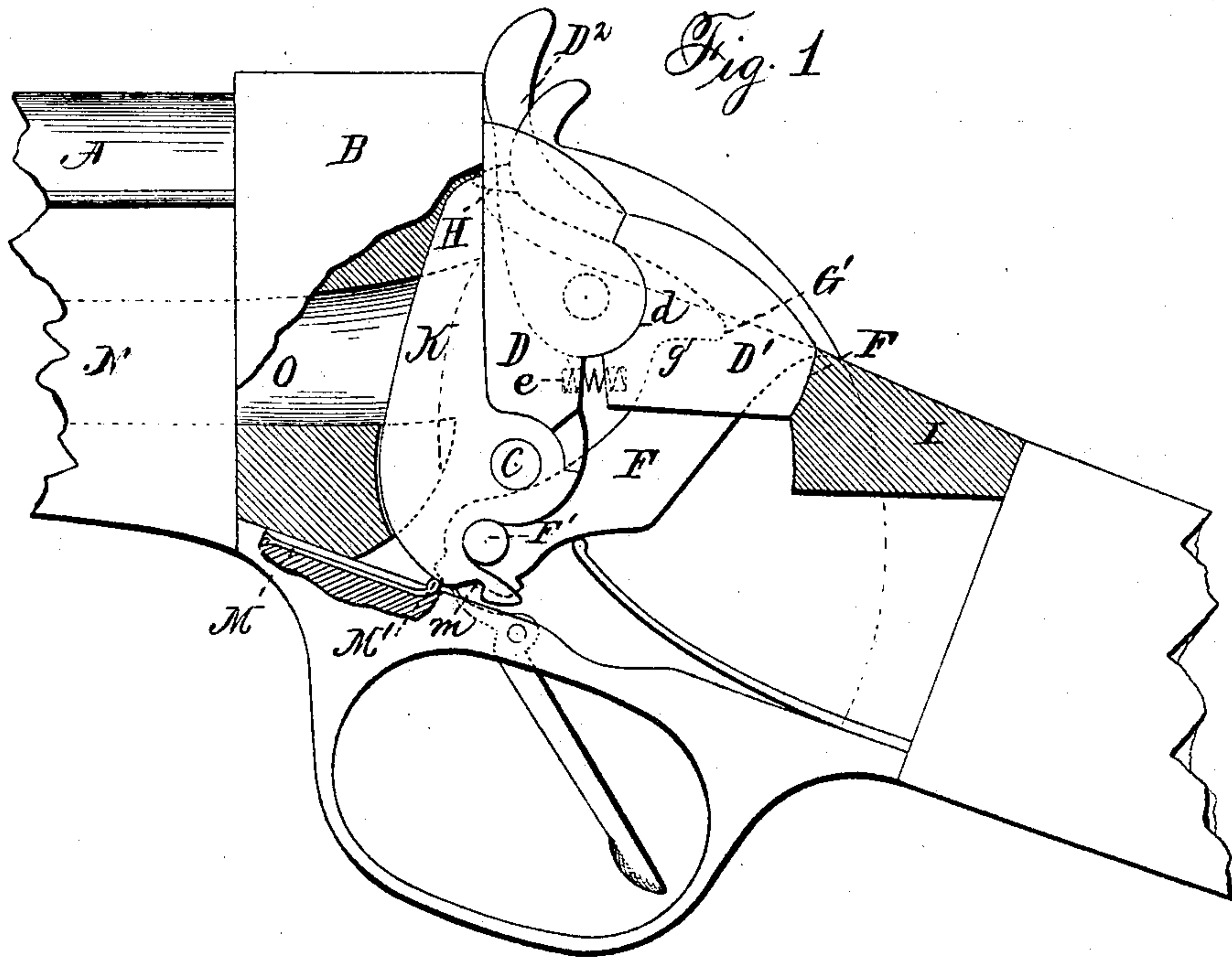
Patented July 12, 1898.

J. M. WHITEMORE.
BREECH LOADING FIREARM.

(Application filed Aug. 16, 1884.)

(No Model.)

3 Sheets—Sheet 1.



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3 Sheets—Sheet 2.

Fig. 5.

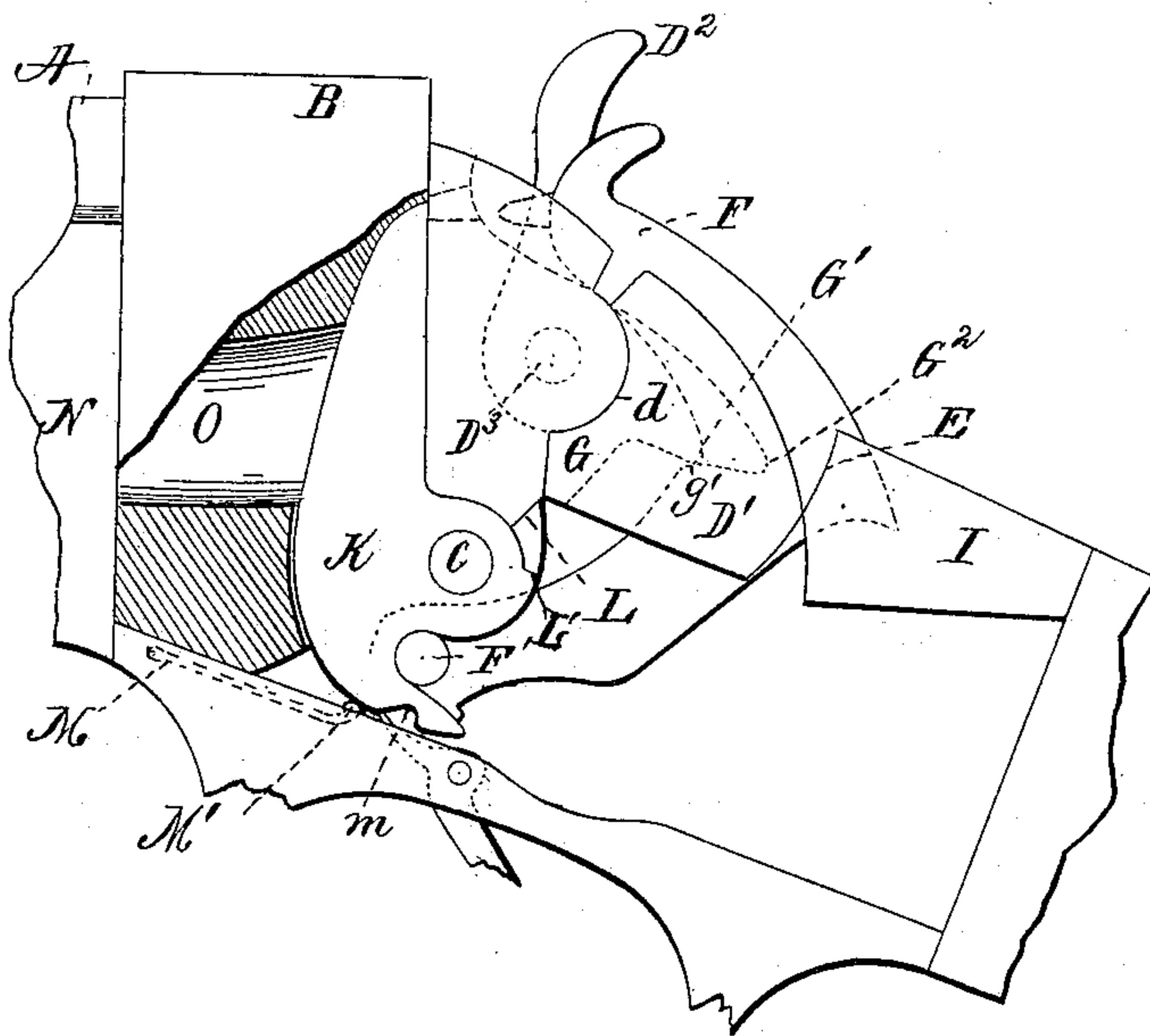
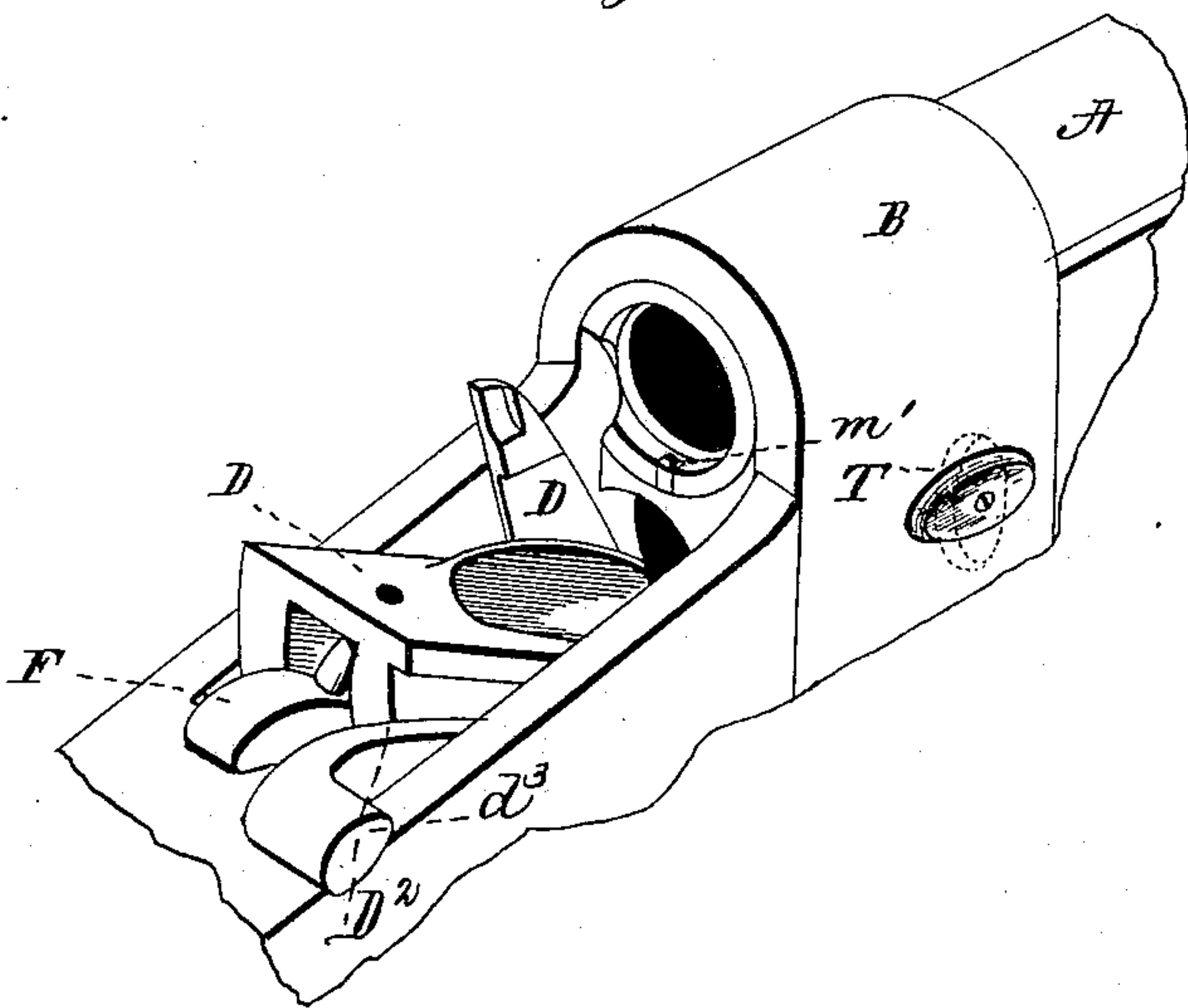


Fig. 4.



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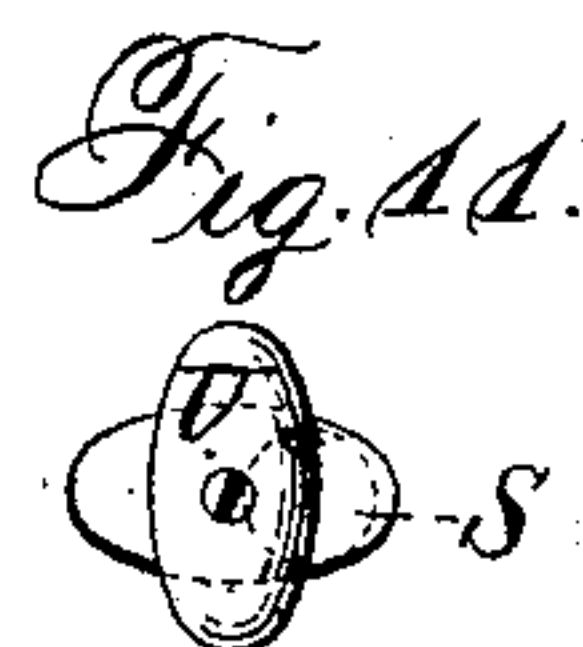
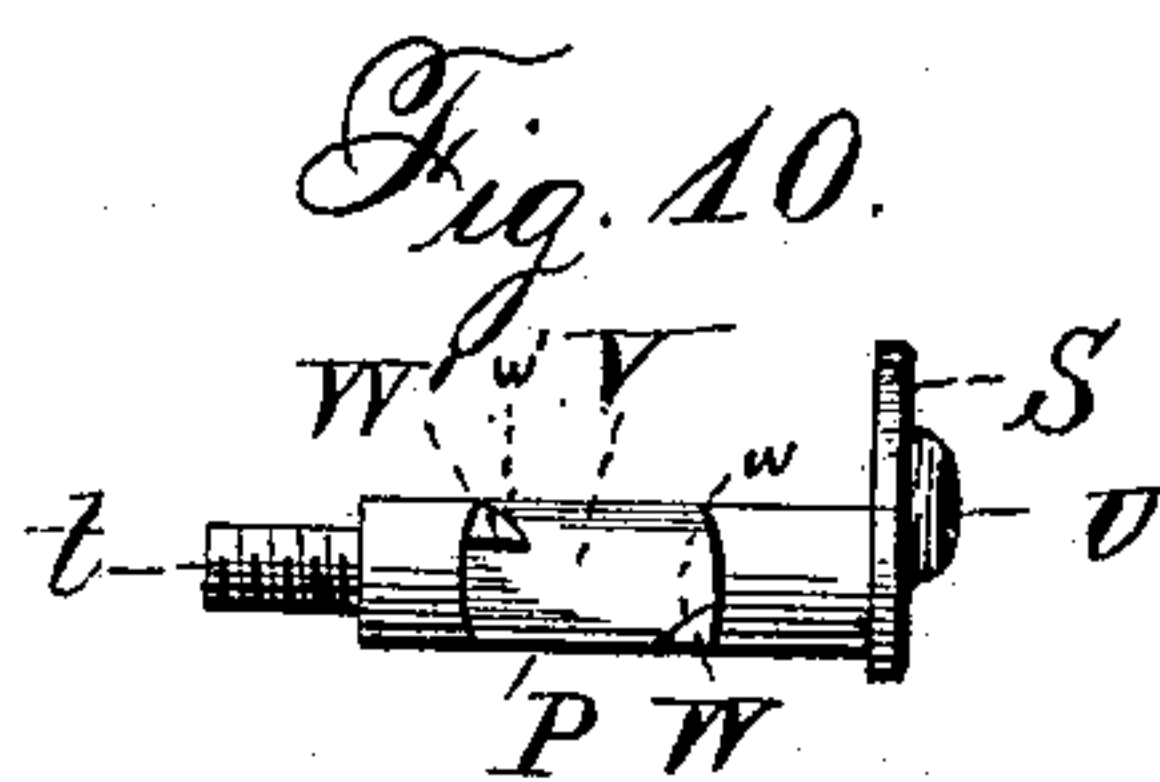
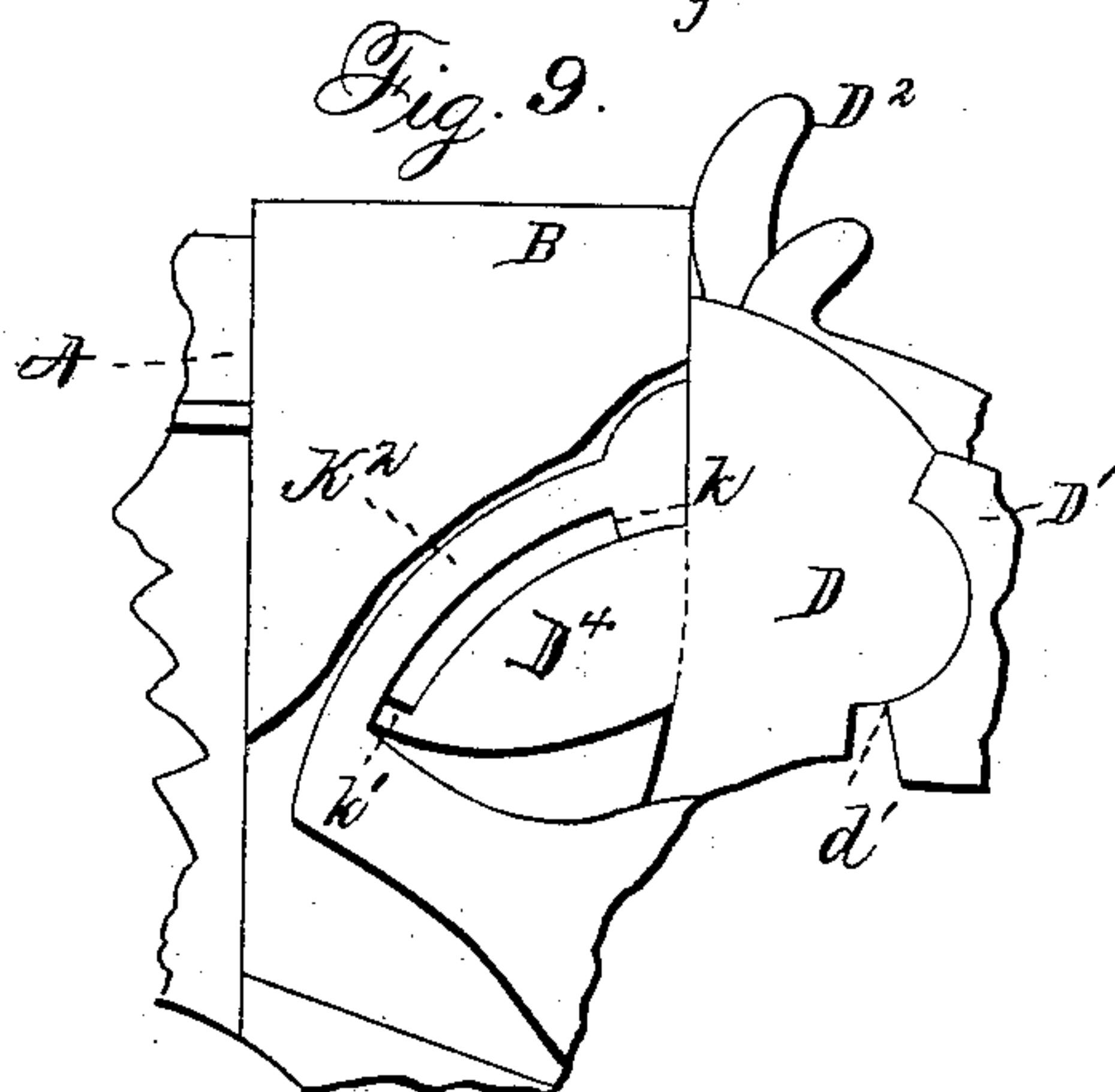
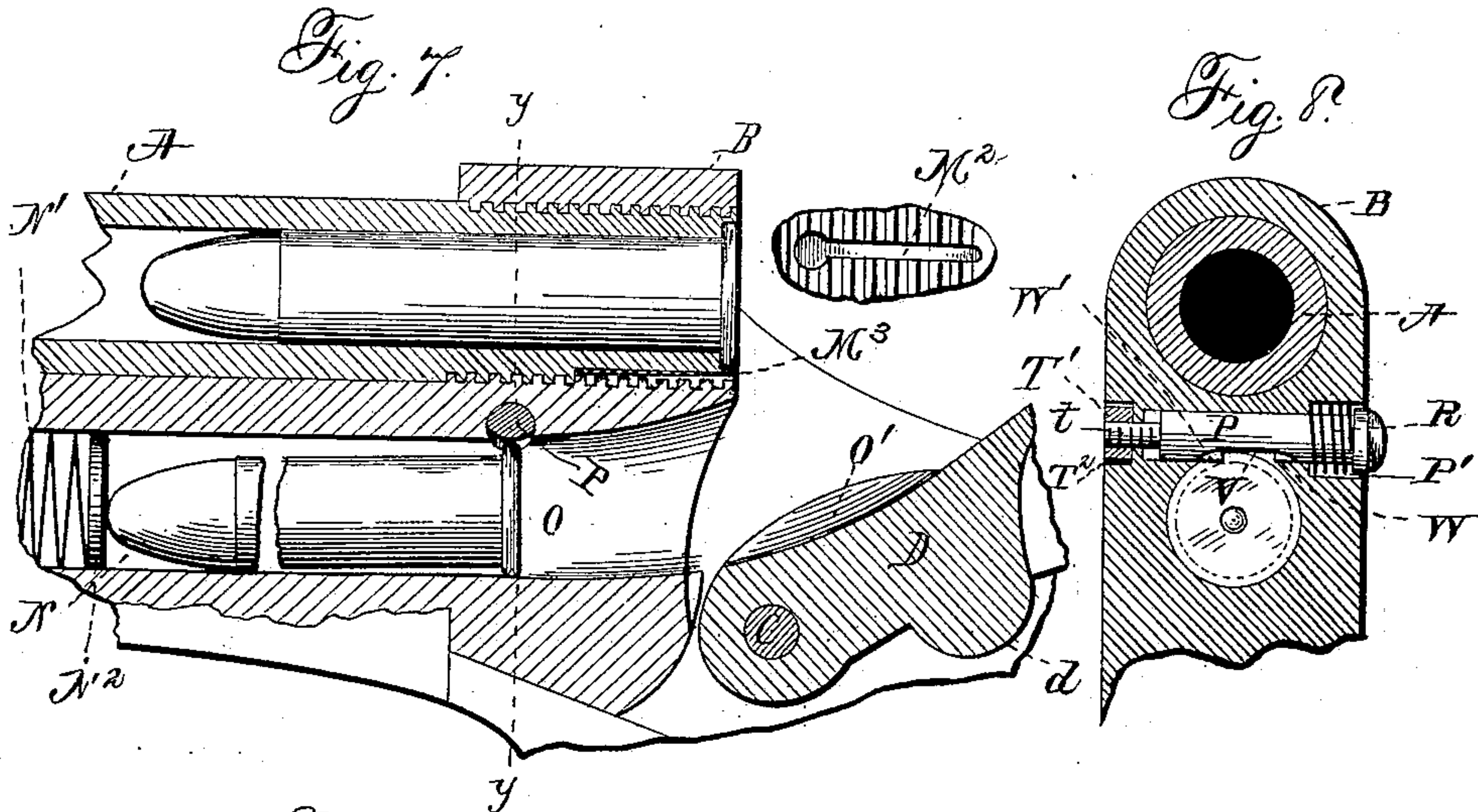
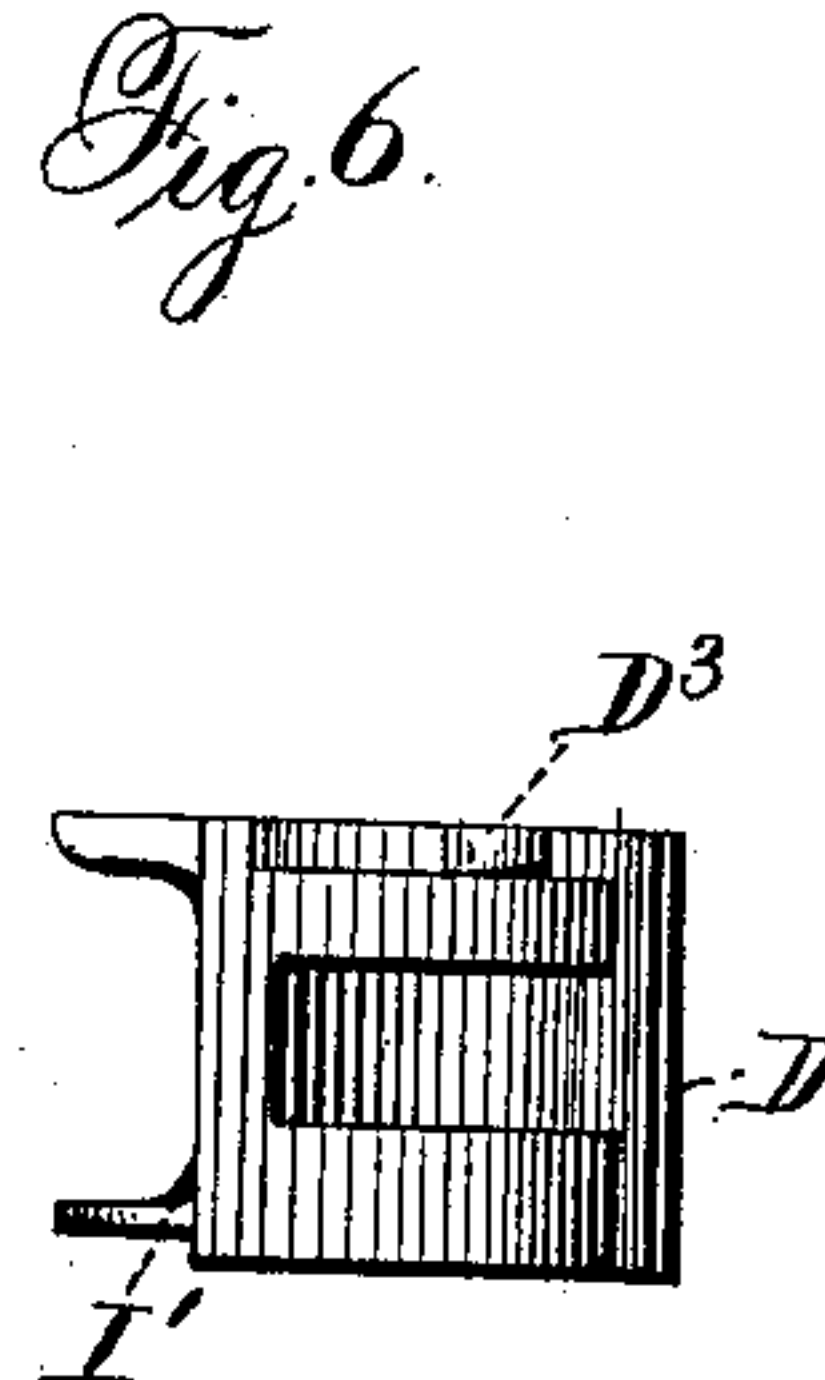
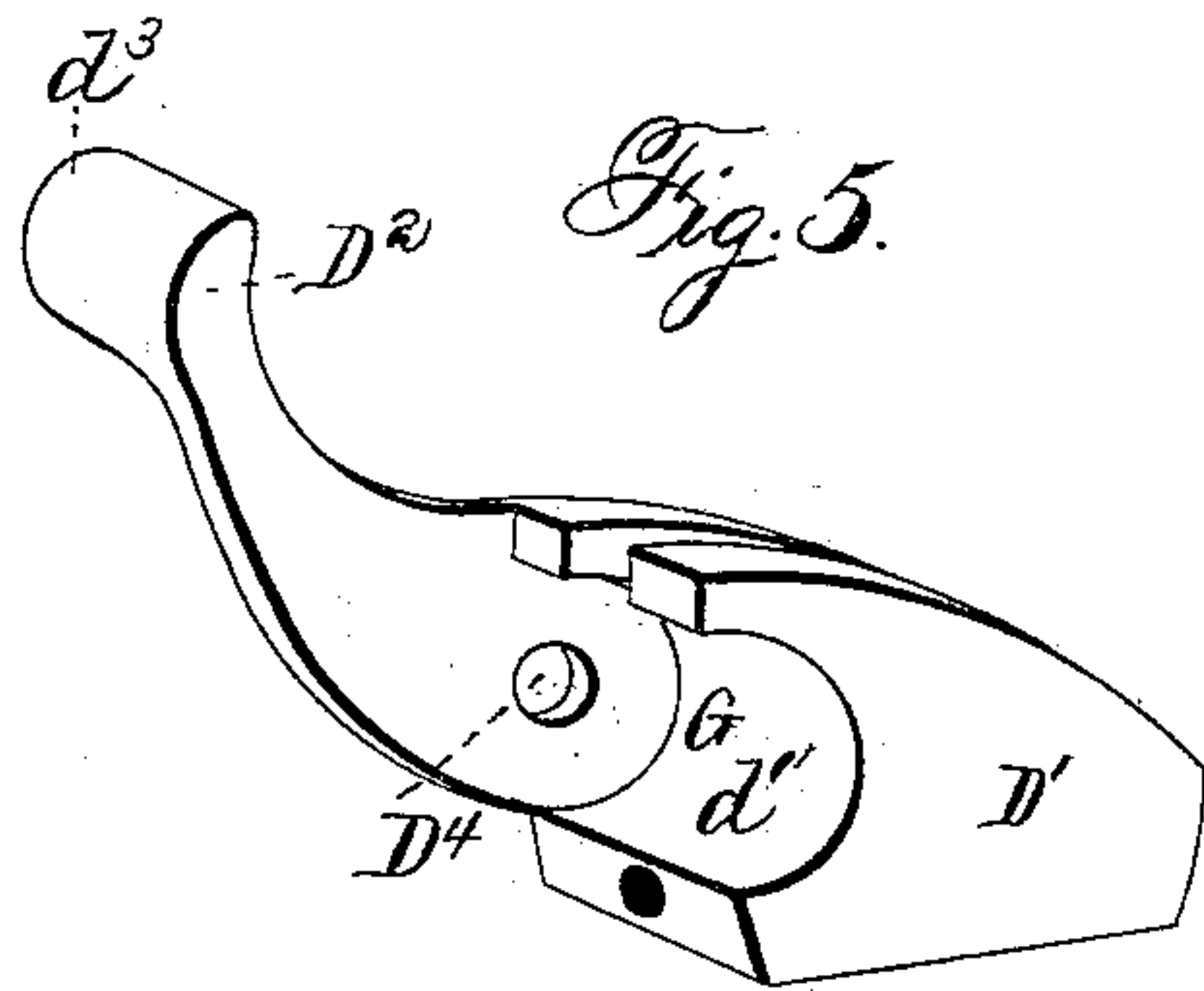
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BREECH LOADING FIREARM.

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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

JAMES M. WHITEMORE, OF WASHINGTON, DISTRICT OF COLUMBIA.

BREECH-LOADING FIREARM.

SPECIFICATION forming part of Letters Patent No. 607,313, dated July 12, 1898.

Application filed August 16, 1884. Serial No. 140,740. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. WHITEMORE, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Firearms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a view in side elevation of the breech portion of a gun made in accordance with my invention, the side of the receiver being broken away to show the parts more clearly; Fig. 2, a similar view with the parts in the revolved position, as when the breech is thrown open; Fig. 3, a similar view showing the parts in the relative positions which they occupy when the end of the locking-brace has just passed off the recoil-surface; Fig. 4, a perspective view looking from the butt-end of the gun, with the parts in the positions as shown in Fig. 2; Fig. 5, a detail perspective view of the locking-brace, a portion being broken away to show the solid connecting portion within the brace; Fig. 6, a detail plan view of the breech-block; Fig. 7, a longitudinal sectional view of the rear end of the barrel, showing the cartridge-retaining spring; Fig. 8, a transverse sectional view of the barrel and receiver on line *y y* of Fig. 7; Fig. 9, a detail view of a portion of the breech-block and the ejector, showing a modified form of means for actuating said ejector; Fig. 10, a detail view of the reciprocating stop mechanism for the magazine; Fig. 11, a detail view in elevation of a portion of the receiver, showing the head of the magazine-stop and the means for locking it.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to provide an improved gun capable of being fired rapidly either as a magazine or single breech-loader; and to this end it consists in the gun and the construction, arrangement, and combination of the parts thereof, as hereinafter described and set forth.

In the drawings, A designates the barrel, which is screwed or otherwise fastened into the receiver B. Pivoted on the pin C, within the receiver-recess, is the breech-block D, preferably nine-tenths of an inch in thickness, so as to just fill the receiver-recess from side to

side. The locking-brace D', of the same thickness as the block, is pivoted to the rear side of the latter, as shown.

The block D has on its rear face the transverse rounded rib *d*, which fits the concavity *d'* in the front end of the brace D'. On the right-hand side the breech-block is cut away to allow for play of the locking-brace arm or lever D², which is of such thickness as to be flush with the side of the block. This arm, as shown, extends forward and upward from the locking-brace at the side thereof and at its upper end is provided with the outwardly-projecting arm *d*³ for convenience in operating the lever by the thumb or by the fingers.

The cut-away side of the block D is provided with a cylindrical pivot-pin D³, which fits an opening D⁴ in the locking-brace arm, the pin and opening being concentric with the movement of the brace on the rib *d*. The rear end of the locking-brace is curved on a circle described from the axis of movement of the brace. This curved bearing-surface thus formed on the end of the brace is preferably about three-eighths of an inch in extent and when the brace is up in locking position it bears against a recoil-surface E of the same extent. The amount of rocking motion of the brace on its pivot on the block is just enough, as shown in Figs. 1 and 2, to carry the brace end down off the recoil-surface without movement of the block. The rocking of the brace up and down is limited by the striking of the brace against the breech-block above and below the pivot-rib on the block. A spiral spring *e* between the breech-block and the brace below such rib tends to swing the brace rearward and upward, and when the breech-block is up, as shown in Fig. 1, closing the breech, serves to hold the brace up with its end bearing on the recoil-surface. It is not relied upon alone to throw the brace up into locking position when the gun is fired by a pulling of the trigger while the breech is open, the result of such pulling being a swinging of the breech-block to a closed position and a throwing up of the brace into its locking position.

The hammer F instead of being pivoted on the same pin with the breech-block is pivoted on a pin F' below the lower end of the breech-block.

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The solid connecting portion G of the brace is formed into a cam, tongue, or projection G' at its rear. The rear side of this tongue is rounded, as shown. The forward and upper side of the radial arm and the under and inner side of the curved striking-arm of the hammer are shaped so as to fit the solid part G and the tongue G' when the parts are in the positions shown in Fig. 1, the hammer being formed with a recess or socket G², into which fits the tongue G'. The side g of the recess toward the center of motion of the hammer is made sloping, and at its upper end the edge is rounded, as shown at g'. The striking end of the hammer has a firing-pin H, which is made separate and screwed into it.

The upper face or side of the locking-brace is curved, the curvature being on a circle described from the center of motion of the breech-block when the brace has been rocked down off the recoil-surface and passing through the upper edge of the bearing-surface on the rear end of the brace.

The recoil-block I, which is preferably made in one piece with the receiver, is cut or milled away below the recoil-surface E on a circle described from the axial center of pin C and passing through the lower edge of the recoil-surface.

The lower end of the breech-block is slotted for a short distance below pin C to allow the radial arm of the hammer to rise far enough to bring the firing-pin against the cap of the cartridge. If desired, the hammer-arm could be curved or shaped to avoid the necessity of so slotting the block. As, however, with my arrangement and construction of block and brace no strain comes upon the pin C, the block can obviously be slotted at its lower end to any desired extent.

The left side of the block D is milled away, as shown at I', to receive the arm of the extractor and ejector K, whose pivotal lower end K' is pivoted upon the pin C, the lower end of the block being rabbeted, as shown, to receive it. The depth of the milling and rabbeting is just sufficient to bring the outer face of the extractor flush with the main portion of the breech-block. A shoulder L on the breech-block strikes a shoulder L' on the part K' of the ejector. As shown, said ejector is pivoted with the block on pin C. If desired, it can, of course, be pivoted elsewhere, as on the side of the receiver, to increase the leverage.

In Fig. 9 I show a modified form of means for moving the extractor. In this case the lower side of the curved arm K² is cut away, a square shoulder k being formed at the rear end of the cut. On the part D⁴ of the block is a pin or lug k', which when the breech-block is thrown back a little over half of its revolution strikes the shoulder k and so carries the extractor back with the block. The cartridge-shell is loosened by this movement, and when the extractor is carried far enough back so that the upturned end M' of spring M bears

against the inclined forward side of notch m on the extractor below its pivot said extractor will be thrown rapidly back by the spring and will throw the cartridge-shell clear of the gun.

In a short longitudinal recess M², cut on the under side of the barrel at its rear end, as shown, is held the spring M³, whose rear end is turned up and either rounded or flattened at m', where it projects slightly above the inner face of the lower side of the rabbet for the cartridge-flange. This end m' of the spring will then bear yieldingly against the flange of the cartridge inserted in the gun and will by friction hold it in place without interfering in any way with the insertion or extraction and ejection of the cartridges or shells. The rear edge of the part m of the spring should be rounded or beveled, so as not to catch on the cartridge-flange. I have shown a flat spring. Instead of this a short plunger or plug with smooth or rounded face, kept up in position by a spiral spring, can be used. Instead of recessing the barrel for the spring the recess can be made in the receiver below the barrel. I prefer, however, to recess the barrel, such recess being very shallow, for then the spring can be kept in its place and the barrel be screwed into the receiver.

Beneath the barrel A is a magazine N, of the ordinary and well-known construction, having the usual spring N', carrying at its rear end a follower N². The end O of the magazine-passage where it passes through the receiver B increases slightly in diameter toward the rear and is curved upward. The forward part of the breech-block, which projects into the receiver under the barrel when the breech is closed, is grooved or channeled out, so that when the block is thrown back, as shown in Fig. 7, there is a clear passage O' for a cartridge from the magazine up over the face of block D. The bottom of passage O' is curved upward, so as to be in continuation of the curve of the bottom of the end O of the magazine-passage through the receiver. With this construction as a cartridge is thrown out of the magazine with its flange resting on and sliding along up the curved bottom of the groove in the block it will be directed up over the face of the breech-block, so as to be readily caught or seized by the hand or fingers and thrust into the barrel.

It will be observed that with my breech mechanism the block is swung so far back and down that its upper edge offers no obstruction to the backward throw of the cartridge-shell by the ejector or to the rapid insertion of cartridges in the barrel, whether they are taken from the magazine or not.

It is my design to have the delivery of the cartridges from the magazine regulated by a stop adapted to be operated by a finger or fingers of the hand used in opening the breech. I therefore provide a reciprocating delivery-stop P, which passes through the receiver from side to side at the top of and near the front end of the portion O of the magazine-

passage. The shank or body of this stop, which can be cylindrical or angular in cross-section, fits and slides in a hole bored through the receiver. On the right-hand side this hole in the receiver is enlarged to form a recess P' for the reception of a coiled spring R, which surrounds the shank of the stop and bears against the under side of the stop-head S. This head is preferably oval or elliptical in shape, flat on its outer surface, and attached to the stop-shank near its forward end. The side of the receiver is recessed at T to receive the head, the recess being of greater depth than the thickness of said head, so as to allow of its being pressed inward to reciprocate the stop. The outward movement of the head and shank is limited by the screw-nut T' on the other end of the shank. This nut fits and moves out and in in the recess T² and is so adjusted on the screw-threaded portion *t* of the shank that it strikes the bottom of the recess when the outer face of the head S is flush with the side of the receiver. If desired, a washer can be provided between the nut and the end of the recess.

On the head S, which, as indicated hereinbefore, is elongated or elliptical, attached at its forward end to the stop-shank and extending rearward therefrom, is pivoted the stop-lock U. This consists of a plate of the same shape as the stop-head, rounded on its outer face and pivoted at or near its center, as shown. With this construction if the plate U be turned with its major axis or longest diameter parallel with that of the head the stop can obviously be pushed in, as desired, against the stress of the spring. If the plate be turned across the head, its ends will overlap the face of the receiver on opposite sides of the head, so that the stop cannot be pushed in or moved in either direction. On its under side the stop-shank is at its middle point notched or cut away, so as to just clear the top of the magazine-passage.

On the lower side of the stop, at the ends of the cut or notch V, are the lugs W W', the plane of the lower faces of which is just above the body of the cartridge in the magazine, but below the top of the cartridge-flange. The lug W is set on the stop-shank forward of the lug or stop W'. The distance from the line of the rear face of lug W and the front face of the other is a little greater than the thickness of the cartridge-flange. With the stop in its normal position and not pushed in the lug W' stands out into the magazine-passage, so as to engage the rear side of the flange of the cartridge in the magazine. The other lug or stop W stands just outside of the passage. The cartridge will then be held in the magazine by the lug W' until the stop is pushed in. By the reciprocation of the shank stop W' is carried to one side of the passage, letting the cartridge be thrown out by the action of the magazine-spring, and the other stop or lug W is moved into the passage far enough to catch the flange

of the succeeding cartridge, but not to strike the body of the cartridge being thrown out, so as to interfere with its movement. When pressure is removed from the stop-head, the spring throws the stop-shank out, carrying the lug W out of engagement with the cartridge-flange and moving the other one, W', in to stop the cartridge from being thrown out. With such a stop mechanism obviously only one cartridge will be delivered at a time.

The rear sides of the lugs W W' are beveled at *w w'*, so that the magazine can be filled by thrusting the cartridge directly into its rear end, the cartridge-flanges by their engagement with the beveled edges of the rear sides of the lugs reciprocating the stop automatically, so as to admit the cartridges. The upper face of the radial arm of the hammer is preferably curved slightly downward from the rounded upper and inner edge of socket *g*. If with the parts as shown in Fig. 1, with the breech closed and the hammer in position, as when the gun is fired, the locking-brace arm be pulled back, the brace will be rocked down off the recoil-surface without movement of the block. This downward swinging of the brace forces the cam-tongue within or on it to bear against and ride up the inclined side of the notch or recess in the hammer, so that said hammer is cammed back, as shown in Fig. 3, to withdraw the firing-pin well away from the front of the breech-block before the locking-brace passes off of the recoil-surface. With this construction obviously the hammer cannot travel far enough forward to project its pin through the breech-block until the locking-brace has been again thrown up into the position shown in Fig. 1, with the bearing-surface at its end resting squarely against the entire recoil-surface. The gun cannot then be fired until the block is locked.

When the brace has been rocked down on its pivot to the limit of its movement thereon, its rear end is just below the recoil-surface and the curvature of its upper side is coinciding with that of the recoil-block below said recoil-surface. The cam-tongue on the brace then rests just on the rounded upper portion of the inclined inner side of the notch or recess in the hammer. If the brace-lever should now be released and the hammer allowed to fly up under stress of the mainspring, the inclined side of the notch would slide up under the tongue and would cam it up quickly into the position shown in Fig. 1. If the brace-lever be swung back from the position shown in Fig. 3, the locking-brace will be carried down to the position shown in Fig. 2, its upper curved face sliding freely along the curved under portion of the recoil-block. The breech-block is carried down with the brace, as the latter can swing down no farther independently of the former. As the hammer is pivoted on a pin below the breech-block pin, the cam-tongue on the brace as it bears against the hammer-arm moves inward

beyond the edge of the recess or notch. To prevent further camming back of the hammer as the tongue thus passes inward along the hammer-arm, the upper face of the arm is curved slightly downward. When the parts have been revolved back, as in Fig. 2, the hammer is at full-cock.

The operation of the extractor and ejector need not be set forth herein, as it is substantially the same as described in my other application referred to.

The breech being open, as shown in Fig. 2, if the hand be placed over the receiver and the end of the barrel and the magazine-stop be pressed with one of the fingers a cartridge will be thrown out into the hand in position to be grasped by the fingers and thrust quickly into the barrel. The hand can be placed with the fingers resting along and pressing against the right side of the receiver in front of the receiver-recess. If then it be drawn back, one or more of the fingers will be sure to strike and operate the magazine-stop and a cartridge will be thrown directly into the hand to be grasped by the fingers. There is then no need to feel for the stop-head, as it cannot be missed. It is found in practice that as the hand is drawn quickly rearward the cartridge is thrown out just in time to be caught by the fingers as they pass off of the receiver side. The cartridge being thrust into the barrel, the trigger is pulled, allowing the hammer to be thrown up by its main-spring. As it swings up the locking-brace and breech-block are thrown up also by the hammer bearing against the locking-brace tongue. As the parts reach the positions shown in Fig. 3 the breech-block closes the breech and the tongue on the brace passes over the edge of the recess in the hammer and engages the inclined side of the recess, by which the tongue and brace are thrown up quickly into the position shown in Fig. 1, locking the breech-block securely. The hammer, being free to swing forward as the tongue passes off its upper face and into the recess for it, moves on until its firing-pin protrudes through the breech-block and strikes the cap on the cartridge. Until the parts have reached the position shown in Fig. 3 and the tongue on the brace has passed over the edge of the recess in the hammer the direction of the blow or pressure of the hammer against the end of the tongue is such that there is no tendency to throw or swing the brace upward on its pivot, but all the power is exerted to throw the breech-block up into position to close the breech. The breech-block can, if desired, be swung up to close the breech before the trigger is pulled. The spiral spring *e* then serves to keep the brace up in locking position. Even if this spring should become weak or inoperative it would do no harm, for the brace would always be thrown up into position by the hammer before the firing-pin could strike the cartridge.

If desired, the magazine-stop can be operated by one or more of the fingers of the left hand, which, to hold the gun properly during the act of loading breech-loaders, usually grasps it at or near the forward part of the receiver. Such position of the hand obviously brings the fingers into position for readily operating the stop by pressing upon its head. The spring *M* can be used or not, as desired, as it is not necessary at all to the proper and successful working of my gun, there being no possibility of the cartridge falling out unless the hammer and breech-block should both be revolved back and left so and the gun should be held upright and jarred in that position. Such a combination of circumstances is obviously not liable to occur when the gun is handled by those at all familiar with firearms. While the breech-block is swung up to close the breech, the brace is kept up in locking position by spring *e*. While the hammer remains at half-cock as the tongue on the brace rests on the side of the recess in the hammer, the locking-brace obviously cannot be swung down far enough to pass off the recoil-surface and unlock the breech-block.

My gun, as described hereinbefore and shown in the drawings, can be fired with equal safety with the breech open or closed. The firing-pin cannot reach the cap on the cartridge until the locking-brace has been thrown clear up into position to bear squarely against the whole extent of the recoil-surface, and while the hammer remains at the safety or half-cock notch the brace cannot be swung down to allow the breech-block to be revolved back without moving the hammer back, the pressure of which would tend to throw the brace up again.

In my gun, as covered in this application, the whole force of the blow or pressure of the hammer against the tongue on the brace acts directly to throw the breech-block up to close the breech, and when the breech is closed, and not till then, to throw the locking-brace up into position to lock the block.

With my magazine attachment my gun can be fired rapidly as a magazine-gun, and when the magazine is empty as a single breech-loader, with the fewest possible motions, and consequently with the greatest possible rapidity.

If desired, spring or other means may be used to lock the turn-button in the position to which it may be turned on the head, or the friction between the parts may be relied upon to hold the button as turned.

I do not claim or intend to cover by my claims herein a breech mechanism in which a locking-brace is pivoted to the breech-block and is provided at one side with a lever-arm for swinging it, which arm is engaged by a portion of the hammer, as such construction and combination are shown and described fully in my prior United States patent, No. 201,970. My invention as described and claimed in

the present application is intended as an improvement upon the invention covered by said patent.

In my present invention the hammer engages directly a portion of the locking-brace instead of engaging a lever-arm on the brace. Thus absolute security against premature firing before locking the breech-block is obtained, such security being not dependent upon the strength of any lever-arm projecting from the brace. The hammer too engages a portion of the brace itself not at one side, as the hammer engages the lever-arm in said patent, but in a line with the center of the axial line of the brace-pivot. Thus the force of the hammer is applied at the most advantageous point for swinging the brace easily and steadily without chance of binding on its pivot.

Having thus described my invention, what I claim is—

1. In combination with a pivoted breech-block and the locking-brace pivoted thereto, projecting from the rear side thereof, the hammer pivoted on a pin below the pivot of the breech-block, and having a portion which when the breech-block and brace are in position to leave the breech open engages a part of the locking-brace and forces the latter upward, closing the breech-block and camming the locking-brace up into locking position as the hammer flies forward to fire the cartridge, substantially as and for the purpose set forth.

2. In combination with the pivoted breech-block, the locking-brace pivoted thereto slotted vertically and centrally at its rear end and between the arms thus formed provided with a rearwardly-projecting tongue, the hammer pivoted below the pivot of the breech-block and provided with a recess adapted to fit the tongue on the brace when the brace is up in locking position, and a suitable lever-arm whereby the brace can be rocked down off of its recoil-surface, substantially as and for the purpose described.

3. In combination with the pivoted breech-block, the locking-brace pivoted thereto provided with a suitable lever-arm, and slotted vertically and centrally at its rear end and formed between the arms thus formed with a cam-tongue, the hammer pivoted below the breech-block provided with a recess with an inclined inner and lower side adapted to receive and fit the tongue on the locking-brace when said brace is up in position to lock the block, and the hammer is at the forward limit of its stroke, substantially as and for the purpose described.

4. In combination with the pivoted breech-block, the locking-brace pivoted thereto slotted vertically and centrally at its rear end, and provided between the arms thus formed with a cam-tongue, the hammer pivoted below the breech-block and playing up through the slot in the rear end of the brace, provided with a cam-surface up over which the tongue on the brace rides when said brace is rocked

down on its pivot, whereby the hammer is cammed back to withdraw its firing end and pin from the front of the breech-block, and is held back as long as the brace is below the recoil-surface, substantially as and for the purpose described.

5. In combination with the pivoted breech-block the locking-brace pivoted to the rear side thereof, provided with a suitable lever-arm and a rearwardly-projecting cam-tongue and adapted to rock on the breech-block just far enough to carry its rear end off the recoil-surface, and the hammer pivoted below the breech-block pivot provided with a recess adapted to fit the tongue on the brace, the inner side of which is cam-shaped so that the end of the tongue rides up over and off of it onto the top of the hammer-arm just after the brace end has passed down off the recoil-surface, and a face on the hammer pressing upward on the tongue at all points of the travel of the brace after it is below the recoil-surface, substantially as and for the purpose described.

6. In combination with the pivoted breech-block, and locking-brace pivoted thereto at its rear side, the tongue or projection on the brace situated in a central longitudinal plane through the brace at right angles to its axis of motion, the hammer pivoted below the pivotal center of the breech-block and engaging the tongue or projection to automatically throw the breech-block and brace up into position to close and lock the breech when the gun is fired with the block down, substantially as and for the purpose described.

7. In a breech-loading gun, the means for holding the cartridge in the barrel when the breech is open which consists in a spring which bears against the periphery of the flange of the cartridge to hold it by friction, substantially as shown and described.

8. In a breech-loading gun a spring secured in a recess in the barrel and at its free end adapted to bear against the flange of a cartridge inserted in the barrel to hold it in place by friction, substantially as and for the purpose described.

9. In a breech-loading gun the means for holding a cartridge in place in the barrel when the breech is open, which consists of a spring secured in a recess in the under side of the barrel and at its free end projecting up into the rabbet for the cartridge-flange, the rear side or edge of such end being beveled or rounded to allow the cartridge to be freely inserted in place, substantially as shown and described.

10. In a magazine-gun, in combination with the cartridge-receiving magazine having its mouth turned rearward, means to guide the cartridges upward and rearward outside of the receiver, and a feed-stop at a point forward of the magazine-mouth operable by a finger of the hand placed to receive a cartridge from the magazine, substantially as and for the purpose shown.

11. In a magazine-gun having a swinging breech-block in combination with the magazine below the barrel provided with a suitable ejecting-spring and the passage-way extending rearward and upward from the magazine-mouth to the front of the breech-bolt when it is swung back and down, means for releasing the cartridges successively from the magazine as desired, in position to be operated by one or more of the fingers of the hand placed over the passage and block, substantially as and for the purpose described.

12. In a magazine-gun, in combination with the magazine and the spring, ejecting means therein, a discharge-passage leading upward and rearward to guide the cartridges up over the open breech-block, and a movable feed-stop for the magazine having its head situated at the side of the receiver in position to be operated by one or more of the fingers of the hand placed behind the mouth of the discharge-passage, substantially as and for the purpose described.

13. In combination with the magazine provided with suitable spring ejecting mechanism, the reciprocating stop extending across the top of the magazine-passage, provided with the lugs for successively engaging the flanges of the cartridges and with a head attached eccentrically to its shank and extending rearward therefrom and fitting in a suitably-shaped recess in the receiverside, a similarly-shaped turn-button centrally pivoted on the head and adapted to be turned to overlap the face of the receiver at the sides of the recess therein, and a spring tending to keep the

stop forced out with its head flush with the receiverside, substantially as and for the purpose described.

14. In combination with the reciprocating magazine-stop, the head attached eccentrically to the shank thereof and extending rearwardly therefrom, the recess in the receiver side shaped to receive the stop-head, the spring around the shank in said recess tending to throw the stop outward, the nut on the other end of the stop-shank playing in a recess in the receiver and adapted to limit the outward movement of the stop-shank under stress of the spring so that the stop-head will normally be flush with the receiver side and the turn-piece of the same shape as the head and adapted to be turned to overlap and rest upon the receiver-face, substantially as and for the purpose set forth.

15. The reciprocating magazine-stop having a head normally flush with the receiver side elliptical in shape and attached at or near its front end to the end of the stop-shank, the recess in the receiver in which the head fits and plays, and the turn-piece of the same shape as the head pivoted centrally on the outerface thereof, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of June, A. D. 1884.

JAMES M. WHITTEMORE.

Witnesses:

GEO. S. PRINDLE,
HENRY C. HAZARD.