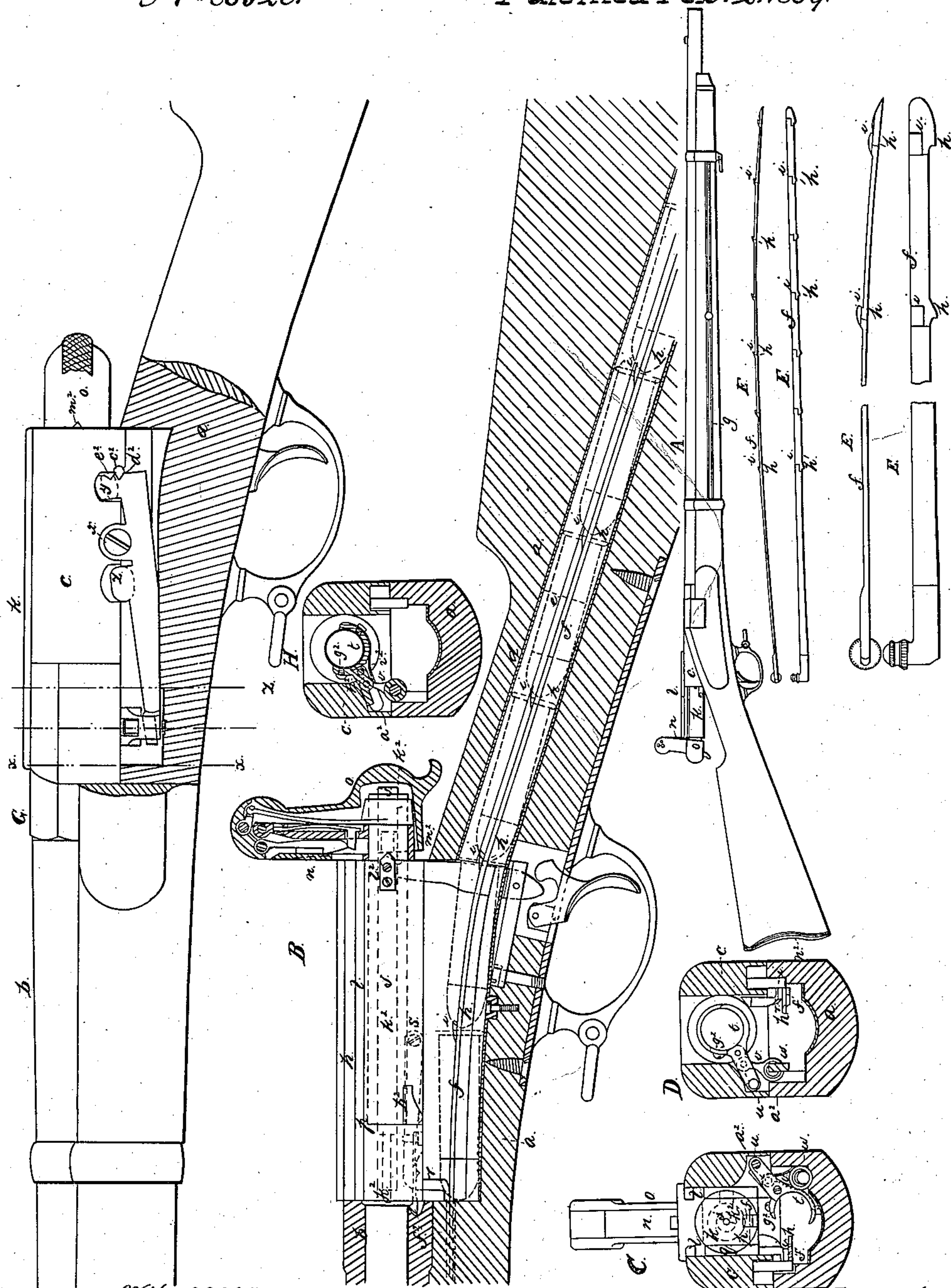


V. Fogerty.
Breech-loading Fire-arm.
N^o 86520. Patented Feb. 2. 1869.



Witnesses.

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UNITED STATES PATENT OFFICE.

VALENTINE FOGERTY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 86,520, dated February 2, 1869.

To all whom it may concern:

Be it known that I, VALENTINE FOGERTY, of Boston, in the county of Suffolk and State of Massachusetts, have invented Improvements in Magazine Breech-Loading Fire-Arms; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The improvements relate to that class of breech-loading fire-arms carrying magazines for holding fixed ammunition, with mechanism for automatically feeding each cartridge in succession from the magazine into the barrel into position for firing.

The present invention has particular reference to the construction and arrangement of the cartridge-feeding mechanism.

In most magazine-arms in which the cartridges are contained within a magazine located within the stock the cartridges are fed forward by a spring located behind the series, though in some arms they are fed forward by reciprocation of a ratchet-bar, and in others they are placed upon an endless belt, which carries them forward. In these constructions (except where a spring presses forward the cartridges) the feeding mechanism is at all times within or adjacent to the magazine, and the magazine is charged through the butt-end of the stock; and the present invention differs from them in that the magazine is charged through the breech-frame, and also in that the feed-bar is made detachable from the magazine, and is slid entirely therefrom when the magazine is to be charged, leaving the cartridges free to slide down the magazine from the breech-frame.

The drawings represent an arm embodying the improvements.

A shows a side elevation of the gun; B, a vertical section through the magazine-tube; C, a cross-section on the line $x x$; D, a cross-section on the line $z z$. E and F represent respectively side and edge views of the cartridge slide or bar. a denotes the stock of the gun; b , the barrel; c , the metal breech-frame connecting the barrel and stock; d , the magazine or cartridge-holding tube, located in the stock and opening at its upper end into the frame c .

The magazine is preferably located centrally

within the stock, or between the two sides thereof, and it is wholly closed at its bottom end, but is open along its whole length on one side, or has a slit, e ; and in and through this slit, and in and through a slit, g , in the stock, at the side of the barrel, slides the cartridge-feeding bar or rod f , said rod being entirely withdrawn from the magazine when the arm is to be charged with cartridges, and having nothing to do with loading, but being slid down into the slit at the side of the magazine after the charging is effected, and being then employed as the instrumentality for feeding the series of cartridges up toward and into the breech-frame, from whence each in succession is transferred into the breech of the gun to be fired. This cartridge-rod is a long, thin, narrow, flexible piece of metal, provided with a series of edge teeth, h , (which correspond in distance apart from tooth to tooth to the length of each cartridge,) and a corresponding series of top teeth, i . As the slide is pushed back into the butt it yields outwardly to permit the edge teeth to pass by the cartridge-flanges; and when pushed home each tooth h projects into the magazine-tube just behind a cartridge-flange, so that if the slide be then drawn forward it carries with it all the cartridges in the magazine.

The groove adjacent the magazine-tube is made in continuation of the groove adjacent to the barrel; and, as these two grooves lie at an angle corresponding (or approximately so) to the angle of the butt and barrel, the slide is made flexible, so that it may readily slide in and through both grooves at one and the same time.

The metal breech-frame is mortised through, as seen at B C D, and the upper end of the magazine-tube opens directly into or from the rear part of the mortise, as seen at B. In the upper part of the mortise slides longitudinally a breech-block, k , which is a long block of metal having side tongues, l , which fit into grooves or ways in the sides of the mortise. This block carries a bolt, j , which runs lengthwise through the block, and has at its outer end an arm, n , upon which is hung the hammer o . The bolt is made capable of a quarter-rotation in the block, and when the block is pressed forward against the barrel a shouldered piece or button, p , at the front of the block

comes into line with or opposite a chambered recess, q , opening laterally from the mortise, so that by turning the bolt the piece p shuts over into the recess q , and thus locks the breech block firmly against the barrel. When the breech-block is drawn back it opens the rear end of the mortise, so as to leave an open space, into which the cartridges may be dropped and from which they can slide freely into the magazine. It is in this way that the magazine is charged, in contradistinction to opening the magazine at the end of the butt and charging the cartridges in at the butt.

The magazine being entirely smooth and free from obstructions, the cartridges are dropped one by one into the mortise, (the floor of which is a continuation of the floor of the magazine,) and thence they slide down the tube until the magazine is filled. Then the cartridge slide or bar is slid rearward down the stock and its teeth fall behind the cartridge-flanges, in position to feed them forward at each forward movement of the breech-block. At one side of the breech-block a pawl, r , is hung, this pawl swinging loosely (vertically) on a pin, s , and when the cartridge-slide is pushed home (after the magazine has been charged) the tooth of this pawl drops behind and engages with the rear tooth, i , of the cartridge-slide, and as the breech-block is next thrown forward this pawl draws forward the cartridge-slide, and with such slide all the cartridges into which its teeth h engage. At the next rear movement of the breech-block the feed-bar remains stationary, with the cartridges at the side of it, but the pawl r is carried back and engages with the next tooth, i , and the next forward movement of the breech-block again carries the cartridges forward. At each of these forward movements the front cartridge (with which the slide is engaged) is carried into the breech-frame, and the front part of the cartridge-slide passes forward into its groove at the side of the barrel, and the operation of feeding the cartridges from the magazine will thus be clearly seen and understood.

The next mechanism to be described is that for transferring each forward cartridge from the magazine into the barrel.

When the breech-block is closed against the barrel there lies at the bottom and at one side of the mortise, in line with the bottom of the magazine, a finger, t , into which the last forward movement of the pawl r and cartridge-slide thrust from the magazine the front cartridge. This finger is hung and swings on a pin, u , and is connected by a link, v , to the end of a tilting lever, w , as seen at G and H, G showing a side view of the breech-frame and H a cross-section through the link v .

The lever w is hung and rocks on a fulcrum, x , and on each side of the fulcrum is a stud, y or z , the upper end of which projects through the side of the breech-frame into a groove, a^2 , and into the path of movement of a dog, b^2 , on the side of the breech-block, said dog slid-

ing in the groove a^2 as the breech-block reciprocates in the breech-frame.

When the cartridge is slid into the finger (the finger being in the position shown at O) the front end of the lever is swung down, and the lever and finger are held in position by a spring-tooth, c^2 , projecting into a notch, d^2 , at the rear end of the lever, as shown at G. In this position of the parts the stud y projects up into the groove a^2 , as seen at G, which shows a side view of the groove and studs. As the breech-block is next drawn back the dog b^2 strikes the stud y and presses it down, thereby tilting the lever and carrying the finger, with the cartridge therein, up into line with the barrel, and as the rear end of the lever is depressed the spring-tooth c^2 is pressed back and out from the notch d^2 and slips forward into another notch, e^2 , and thus holds the finger in position in line with the barrel. If the arm has been previously fired, the rear movement of the breech-block also draws out from the barrel the exploded cartridge-shell and ejects it from the arm, as follows:

Under the lower surface of the breech-block or of the button p is fixed the shank of a spring-latch, f^2 , and as the breech-block closes against the barrel the hook of this latch (which projects beyond the end of the breech-block) slides under and springs up in front of the flange of the cartridge driven in by the breech-block. As the breech-block, after firing the arm, is drawn back, this latch-hook pulls upon the flange of the exploded cartridge-shell and withdraws it from the barrel, and the position of the dog b^2 relatively to the stud y is such that the dog does not strike the lever-stud until the breech-block has gone far enough back to remove the exploded shell, so that as the finger is thrown up it or the new cartridge which it holds strikes under the cartridge-shell and throws it from the opened breech-frame. The upward movement of the finger brings the new cartridge into line with the barrel, and the finger is held in its position by the presence of the spring-tooth c^2 in the notch e^2 . As the breech-block is next thrown forward it strikes the cartridge-head and drives the cartridge before it, and when the front end of the cartridge has sufficiently entered the barrel the dog b^2 strikes the front stud, 2 , and thereby throws down the front end of the lever, which movement of the lever throws the cartridge-holding finger down again into line with the magazine in position for receiving the next cartridge, which is carried by the continued forward movement of the breech-block from the magazine on the finger, as before described. As the breech-block closes against the barrel it drives the cartridge ahead of it, and, the barrel being thus loaded, the bolt j is turned, and the breech is thereby locked in position, as before described.

To hold the cartridge securely when the finger rises, the finger is made with a hinged jaw, g^2 , which jaw has a tail-piece, h^2 , to which the link v is jointed, as seen at H. When the finger

finger rises, the finger is made with a hinged jaw, g^2 , which jaw has a tail-piece, h^2 , to which the link v is jointed, as seen at H. When the finger is thrown down the link v is drawn under the finger and spreads open the finger. A spring, i^2 , bears against this tail-piece, and as the cartridge-finger rises the spring closes the jaw g^2 upon the cartridge and clasps it securely, or in such manner that it cannot be thrown from the finger by the upward movement of the finger.

The cartridge is exploded by a pin, k^2 , which passes centrally through the bolt j , this pin being driven forward by the hammer o . This hammer is hung directly on the arm n , and with such arm forms the handle for moving the breech-block to and fro, and for turning the bolt to lock and unlock the breech-block. When in upright position it is thrown away from the percussion-pin k^2 , or half-cocked, by a tooth, l^2 ; but when thrown round to lock the breech this tooth slips into a notch, m^2 , and thus lets the hammer in against the pin, or so that when the hammer is cocked its release will cause it to drive the pin forward against the cartridge-head and to explode the cartridge.

As has been before observed, the cartridges are charged into the magazine-tube through the breech-frame, during which charging the cartridge-slide is withdrawn from the tube, or from its slot at the side of the tube, the slide being pressed back, that its teeth may engage with and feed forward the cartridges after the magazine is thus charged. This arrangement may be modified, however, by the employment of a coiled spring in connection with the slide instead of the teeth upon the slide, the spring being in the rear of the cartridges and connected to the slide, and acting, by its expansion, to feed the cartridges forward at each forward movement of the spring, the magazine being prepared for charging by forcing back the spring by means of the slide, so that the cartridges may be dropped in through the breech-frame; or the slide may be made free from the cartridge-feeding teeth and with only one projection near its rear end, this projection feeding the whole line of cartridges, they abutting each against the one in rear of it.

The slide may also be made with joints; but the construction shown is preferred.

The slide may also be made to feed down the cartridges by reciprocating it, or may be so arranged that the magazine can be filled when the slide is beside it, the slide being forced back into its groove as or while the

cartridges enter the magazine and springing out into engagement with them when the magazine is loaded.

The arm may be used as a single-loader when no cartridges are in the magazine by simply dropping the cartridge upon the finger, without tipping the arm, to permit the cartridge to slide into the magazine; or a stop may be inserted to prevent descent of cartridge into magazine.

The arm may also be used as a single-loader when the magazine is charged by leaving the feed-bar in its groove at the side of the barrel, or by pressing it down into the slot at side of magazine so far that the pawl will reciprocate without engaging with the upper tooth of the slide.

In magazine-arms carrying cartridges in line, each resting against the one in advance or in rear of it, the cartridges are liable to be exploded in bringing the butt of the arm to the ground, as in "order arms." To obviate this difficulty, there may be placed between the butt-plate and the stock a rubber cushion, n^2 , against which the percussive force of the blow is expended when the butt strikes the ground, the arm being held vertically, violent contact or pressure against any cartridge-head being thus prevented.

I claim—

1. In combination with a sliding breech-block, a magazine-tube opening into the breech-frame in such manner that it may be charged or filled with cartridges through the top of such frame, substantially as described.

2. I also claim combining with the magazine charged through the breech-frame a feeding slide or bar, which is removed in charging the magazine-tube, and is slid by and engages with the cartridges (so that it can feed them forward) after the magazine is charged, substantially as described.

3. I also claim, in combination with the cartridge-containing magazine, a feeding device located at the side of the magazine and working through a slot in the magazine, substantially as described.

4. I also claim constructing the feed slide or bar with teeth h , for engaging with the cartridges and with teeth i , acted upon by a feed-pawl connected with the reciprocating breech-block, substantially as described.

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Witnesses:

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