(No Model.) 3 Sheets—Sheet 1.

P. BOCH.

MAGAZINE GUN.

No. 276,522. Patented Apr. 24, 1883.

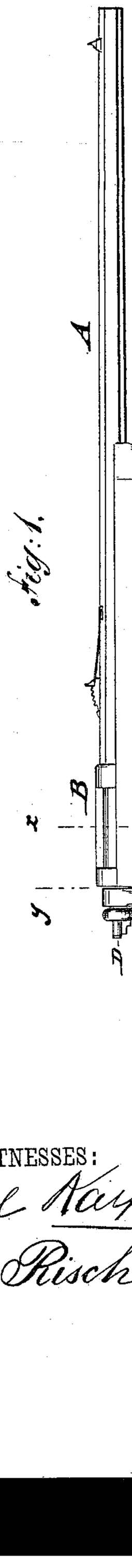
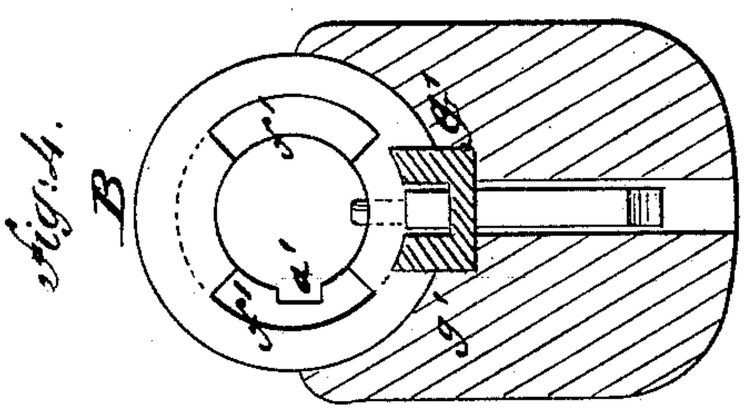


Fig. 1.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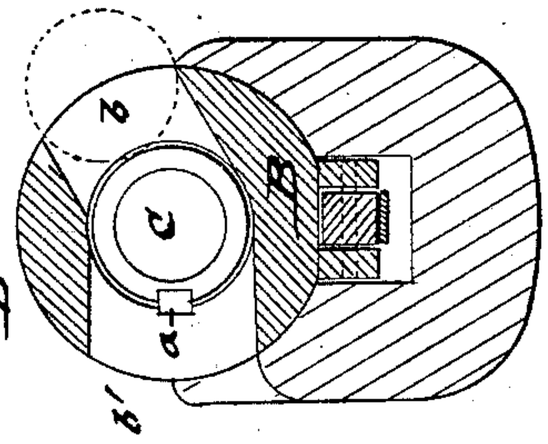
Fig. 3.

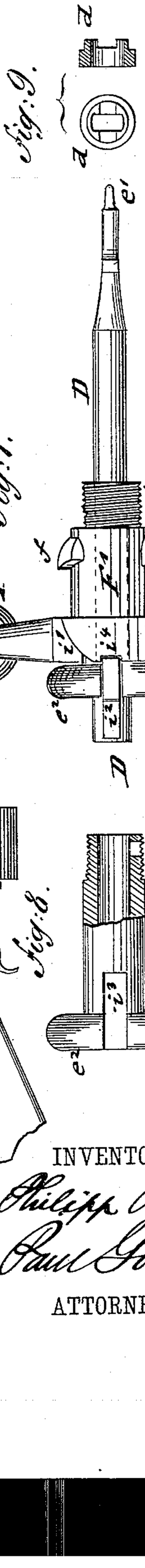
Fig. 9.

Fig. 7.


Fig. 6.

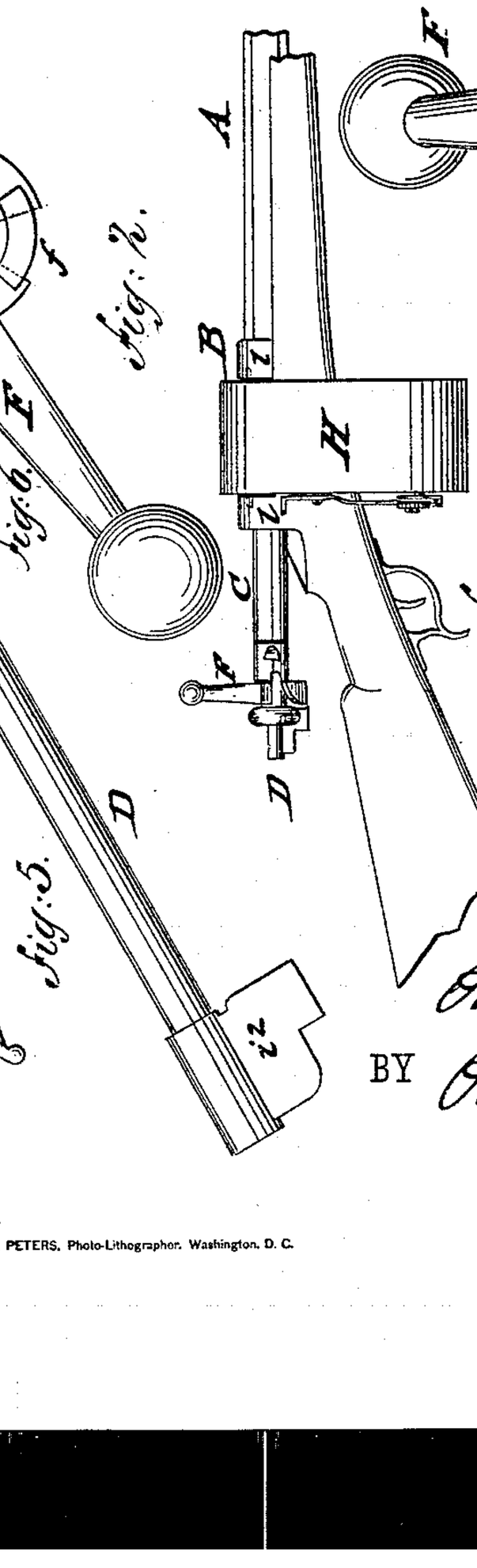
Fig. 5.

Fig. 2.

Fig. 8.

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(No Model.) 3 Sheets—Sheet 2.

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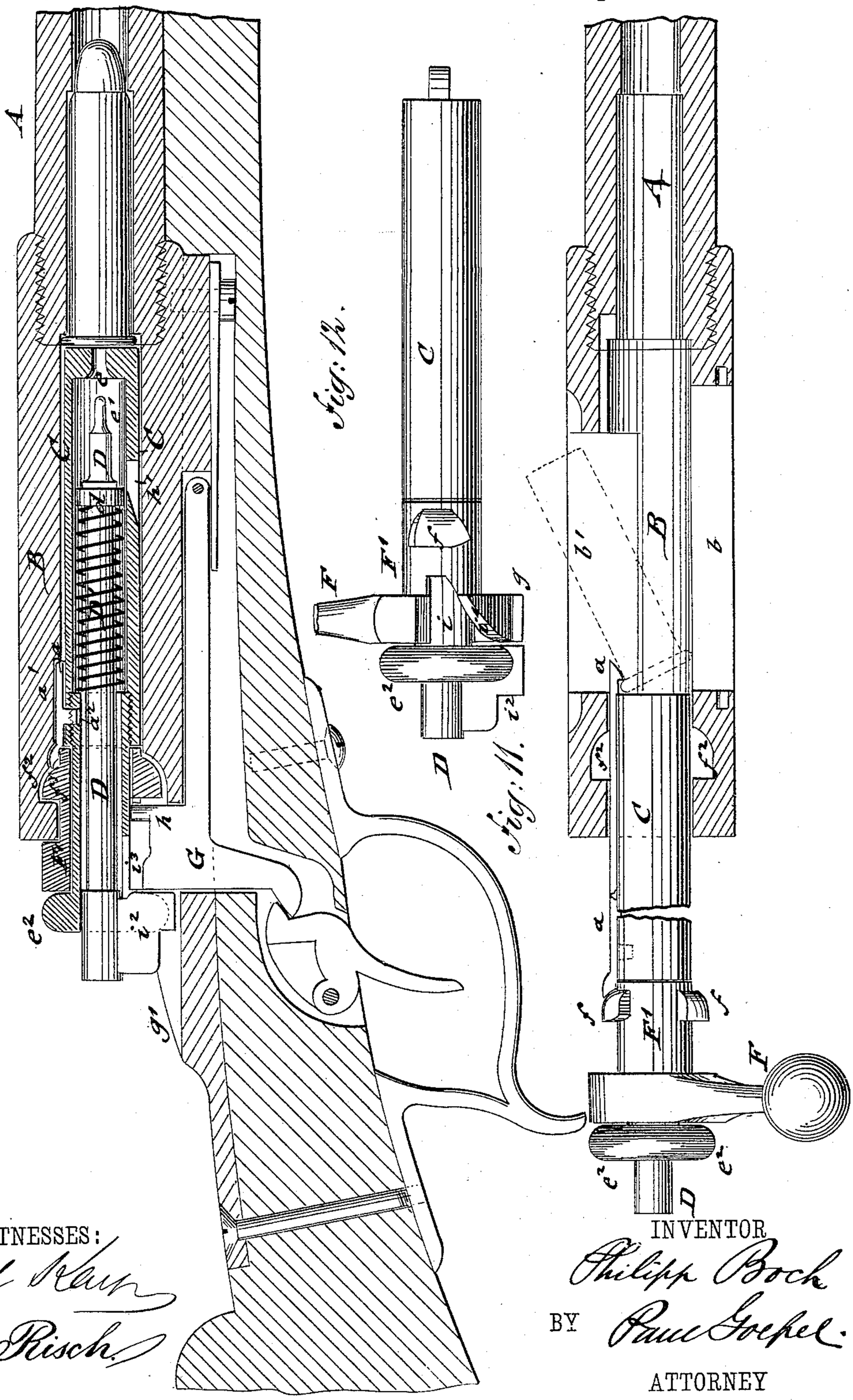
MAGAZINE GUN.

No. 276,522. Patented Apr. 24, 1883.



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(No Model.) 3 Sheets—Sheet 3.

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MAGAZINE GUN.

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Fig: 15.

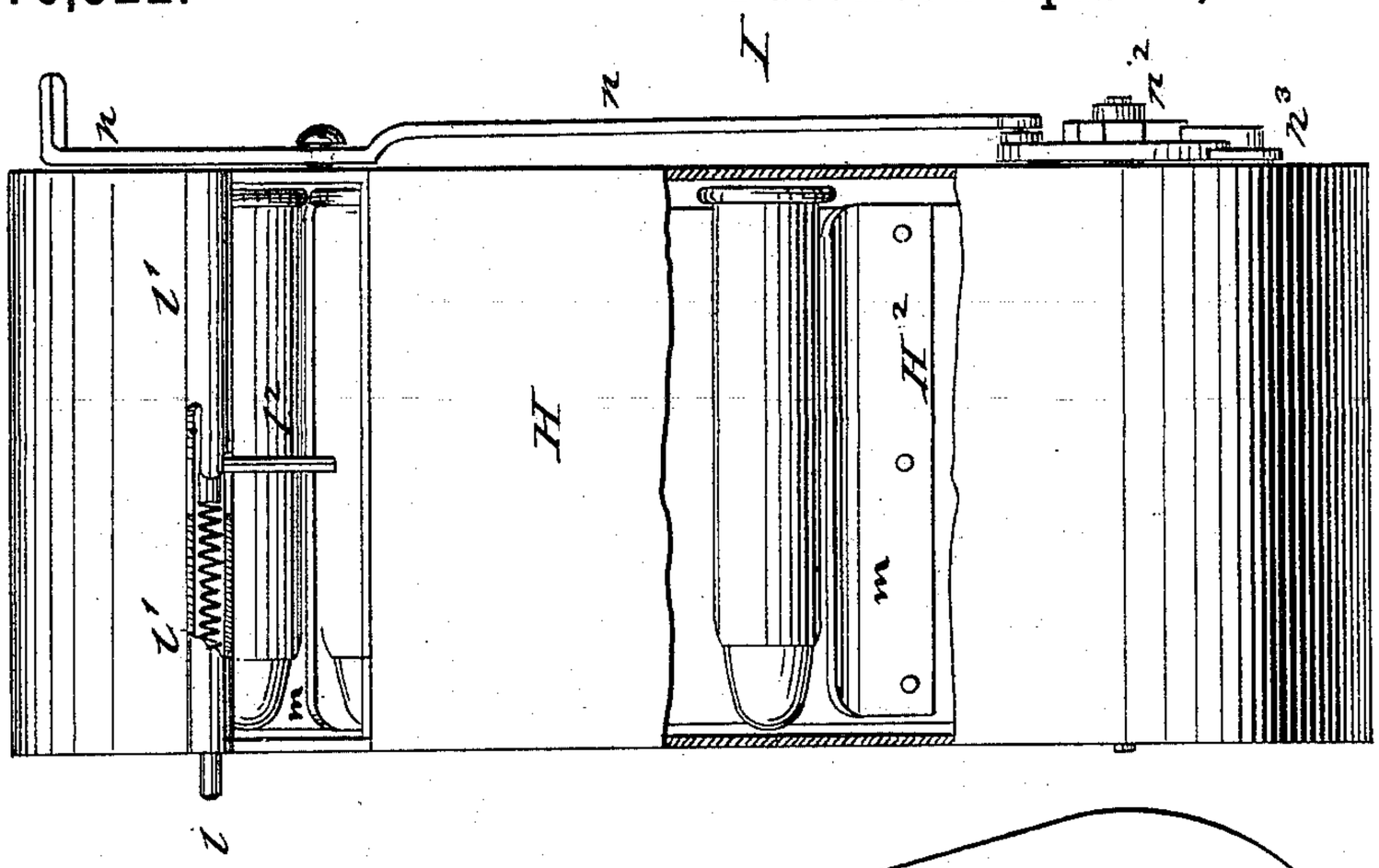


Fig: 14.

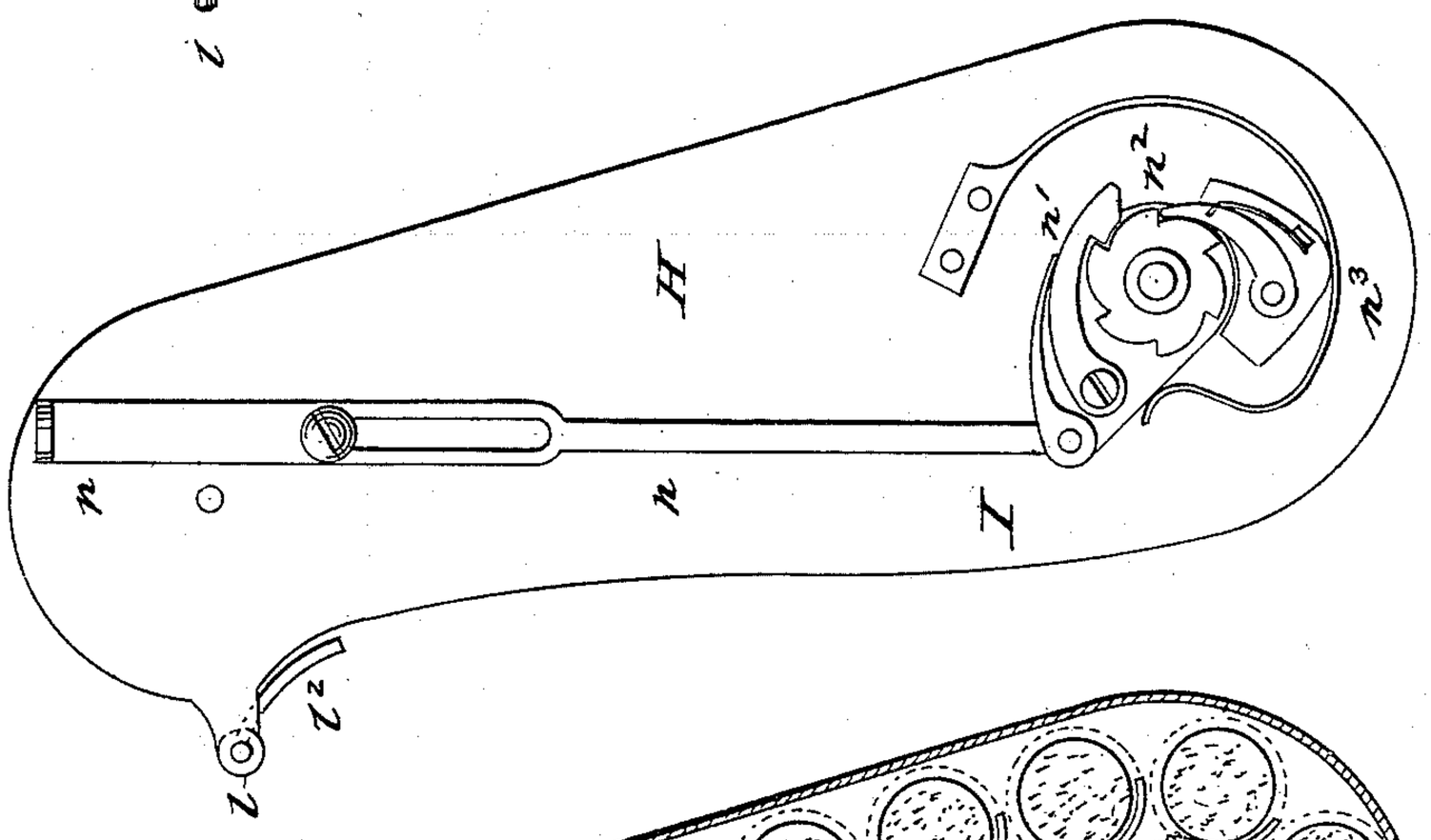
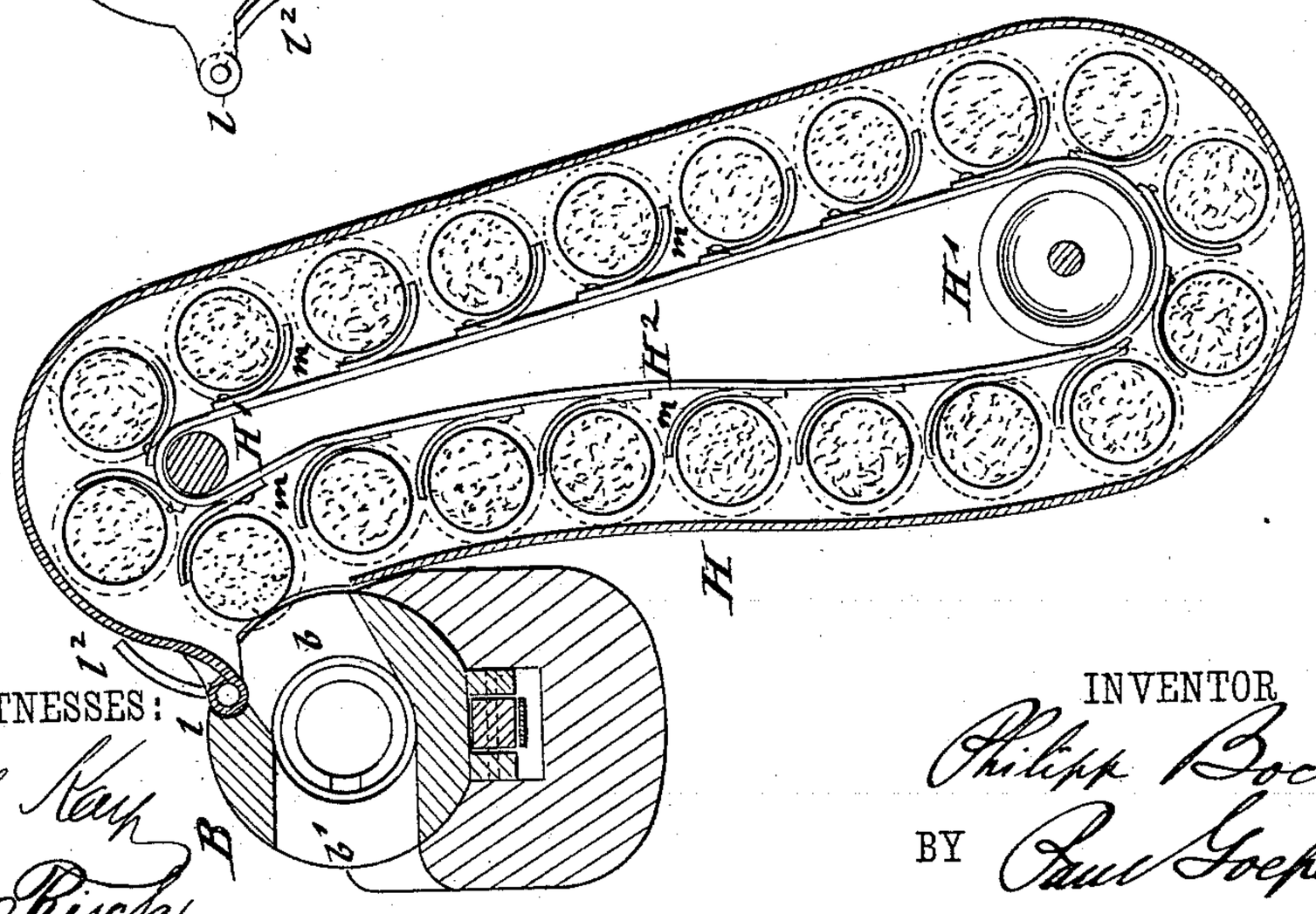


Fig: 13.



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UNITED STATES PATENT OFFICE.

PHILIPP BOCH, OF NEW YORK, N. Y., ASSIGNOR OF ONE-TENTH TO JACOB OSTER, OF SAME PLACE.

MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 276,522, dated April 24, 1883.

Application filed September 3, 1881. (No model.)

To all whom it may concern:

Be it known that I, PHILIPP BOCH, of the city, county, and State of New York, have invented certain new and useful Improvements in Magazine Fire-Arms, of which the following is a specification.

This invention relates to improvements in that class of breech-loading fire-arms known as "bolt-guns," which are used in connection with a detachable magazine applied thereto, so that the gun can be used either as an ordinary breech-loader or as a magazine-gun, as desired.

The invention consists in a novel construction of the detachable magazine or case, by which a large numbar of cartridge, may be fed in succession to the breech-loader for rapid firing.

In the accompanying drawings, Figure 1 represents a side elevation of my improved breech-loading fire-arm, shown with the magazine detached. Fig. 2 is a side view of the same, shown with the magazine in position and the breech-bolt drawn back. Figs. 3 and 4 are detail vertical transverse sections of the same, respectively on lines *x x* and *y y*, Fig. 1, on an enlarged scale. Fig. 5 is a detail side view of the firing-pin arranged within the breech-bolt. Fig. 6 is a detail side view of the lever for actuating the breech-bolt. Fig. 7 is a detail side view of the firing-pin, rear part of the breech-bolt, and actuating-lever. Fig. 8 is a detail sectional side view of the rear part of the breech-bolt. Fig. 9 is a detail end view and section of a collar secured near the front end of the firing-pin. Fig. 10 is a vertical longitudinal section, on an enlarged scale, of my improved fire-arm. Fig. 11 is a horizontal section through the barrel and shoe, shown with the breech-bolt drawn back and in the act of throwing out the shell. Fig. 12 is a detail side view of the breech-bolt; and Figs. 13, 14, and 15 show respectively a vertical transverse section, a side view, and an end view of the detachable magazine, partly in section to show its connection with the shoe of the fire-arm.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the barrel, B the receiver or shoe at the breech end of the same, and C the sliding breech-bolt, which is accurately fitted to the inside of the shoe B, and guided by the shank of the extractor *a* in a corresponding groove, *a'*, of the shoe B. The shoe B is provided with longitudinal side slots or openings, *b b'*, nearly diametrically opposite to each other, as shown respectively in Figs. 3, 11, and 13, the opening *b* on the right-hand side being longer than that on the left-hand side to provide for the insertion of the cartridges, while the shorter opening, *b'*, serves for throwing out the empty shell. By arranging two openings the cartridge can be fed to the receiver B from the magazine at one side almost simultaneously with the throwing out of the shell at the other side, so as to accelerate the charging of the arm.

The breech-bolt C is constructed of a tubular exterior portion and an interior spring-acted firing-pin, D. The exterior portion of the breech-bolt C consists, again, of two parts which are screwed together, the rear part being screwed into the front part, and forming at the interior of the breech-bolt a shoulder or seat for supporting the rear end of a spiral spring, D', the front end of which presses against a collar, *d*, secured near the end of the firing-pin D. This spring serves to throw the firing-pin forward after the same has been drawn back with the breech-bolt and set in position.

The closed front end of the breech-bolt C has a central tapering opening, *e*, for the correspondingly-shaped end, *e'*, of the firing-pin, while the rear end is open and provided with an annular collar, e^2, against which bears the sleeve F' of the actuating-lever F, said sleeve having projecting cams *f* near its front end. The sleeve F' may be pushed with the breech-bolt into the shoe B, the cams entering into corresponding guide recesses, *f'*, at the rear end of the sleeve until the lever F abuts against the rear end of the same. The shoe B is provided back of the guide-recesses *f'* with an interior annular groove, f^2, so that the cams *f* lock the breech-bolt rigidly to the shoe on turning the sleeve around its axis by the lever F, as shown in Fig. 10. The actuating-lever F is then in the position shown in Fig. 1, the

breech-bolt being in position to close the rear end of the barrel. By throwing up the lever F until a projection, *g*, of the same strikes against the tail-piece *g'* of the shoe B the cams *f* of the sleeve F' are in line with the recesses *f'*, so that the breech-bolt C may be pulled back by the lever F in the direction of the longitudinal axis of the barrel until a stop-pin, *h*, of an intermediate spring-acted trigger-piece, G, engages a recess, *h'* at the under side of the front part of the breech-bolt C, so as to engage the same in line, or nearly so, with the rear edge of the openings of the shoe B, as shown in Fig. 11. The recess *h'* is inclined at its rear end, but square at the front end, so that the breech-bolt may be readily thrown forward for closing the breech, but not be withdrawn back of the stop-pin *h* except by lowering the trigger-piece G, as will be described hereinafter.

The lever F and its sleeve F' are provided with a recess, *i*, which is inclined at one side, so as to form a cam, *i'*, that serves to engage a lug or wing, i^2, at the rear end of the firing-pin D, so as to cause the latter to be drawn back when the lever F is thrown up. The lug i^2 of the firing-pin D is guided in its backward motion by the grooved tail-piece *g'* of the shoe B, and by a recess, i^3, at the rear end of the breech-bolt. At the end of the inclined cam *i'* the lug i^2 is engaged by a recess, i^4, of the lever F, (shown in Fig. 7,) so that the firing-pin is retained in drawn-back position during the backward-and-forward motion of the breech-bolt. As soon as the shell is thrown out through the opening *b'* by the extractor *a*, and a new cartridge supplied to the shoe through the opening *b'*, the breech-bolt is pushed forward again and locked firmly to the shoe by throwing down the lever F. At the moment when the lever F is thrown into downward position at the rear end of the shoe the lug i^2 of the firing-pin D is released from the recess i^4 of the lever F, but simultaneously engaged by the angular rear portion of the intermediate trigger-piece, G, as shown in Fig. 10, in which position the firing-pin D is ready to be thrown forward by its spring D' on being released. This is accomplished by pulling the trigger and withdrawing the intermediate piece, G, so that it clears the lug i^2 of the firing-pin D, which is then instantly thrown forward by the action of its spiral spring D'. The front end of the firing-pin D passes through the central tapering hole, *e*, at the closed end of the tubular breech-bolt, and strikes the primer at the center of the cartridge, so as to fire the arm. The lug i^2 of the firing-pin is guided in its forward motion by the recess i^3 of the rear part of the breech-bolt C, and by the tail-piece of the shoe B, (shown respectively in Figs. 3 and 4,) until the firing-pin arrives at the end of its forward motion.

Whenever it should be desired for the purpose of repairs or in case of the unsatisfactory working of any part of the mechanism to withdraw the breech-bolt entirely, the trigger is pulled, and simultaneously the breech-bolt drawn back by means of the lever, the pulling of the trigger producing the lowering of the stop-pin *h* of the intermediate piece, *e'*, so that the pin clears the breech-bolt and admits the entire withdrawal of the same. After the breech-bolt is withdrawn all its component parts may be quickly separated from each other in the following manner: The extractor, which is connected by a pin, a^2, to a socket-hole of the breech-bolt, is first removed; then the parts of the breech-bolt are disconnected by unscrewing one from the other; thirdly, the collar, which is connected to the front end of the firing-pin by a kind of a bayonet-joint, (shown in Fig. 9,) is removed therefrom, and then the firing-pin and its spiral spring are removed from the rear part of the breech-bolt; finally, the lever and its sleeve are disconnected from the rear portion. The different parts of the breech-bolt, after being thus disconnected, can be readily cleaned and put together in reverse order for being replaced into the shoe or receiver B by lowering the stop-pin of the intermediate piece in the same manner as before described. This forms an essential advantage of my improved breech-loading fire-arm, as thereby at any moment the breech-bolt may be withdrawn, readily cleaned, and replaced in position, in case by repeated use or wear it should not properly perform its functions. It also facilitates the replacing of any worn-out parts with great facility without requiring the return of the arm to the repair-shop.

The magazine H is detachably connected to the right-hand side of the shoe B by means of locking-pins *l*, near its upper end, as shown clearly in Figs. 2 and 15. The locking-pins slide in tubular sockets *l'* of the magazine, one being spring-acted, while the other is set by a fixed arm, l^2, which is retained in recesses of the sockets, as shown in Fig. 15. The locking-pins *l* project into sockets of the shoe at the upper edge of the opening *b*, and retain thereby the magazine in position thereon. If desired, additional retaining devices may be used. The exterior casing of the magazine is made of such a shape that it fits to the side of the fire-arm for the steadier support thereon. The casing may be made of sheet metal or other material, but preferably of soft rubber of suitable thickness. The casing is made of elongated shape, the sides being stiffened either by an extra layer of rubber or by a layer of sheet metal, or otherwise, so as to give it the required strength and stiffness for the support of the cartridges stored therein. At the inside of the magazine are arranged near the upper and lower ends, respectively, transverse guide-rollers H', over which is stretched an endless belt or apron, H^2, having a number of cups, *m*. Each cup is supplied with a cartridge when the magazine is charged by bringing the cups one after the other in line with the

opening of the magazine at the upper part thereof, the belt being moved forward by means of an actuating mechanism, I, which consists of a guided slide-piece, *n*, with a thumb-rest at the upper end. A spring-pawl, *n'*, is applied to the lower end of the slide-piece *n*, which engages at each depression of the slide-piece a ratchet-wheel, n^2, keyed to the shaft of the lower guide-roller H'. By means of a spring, n^3, the slide-piece *n* is returned into raised position, ready to be depressed again by the thumb.

I propose to arrange the magazine preferably with twenty cartridges, which can be successively supplied to the receiver B when it is attached thereto. The cartridges are moved forward with the belt by the actuating mechanism I, which is operated by striking the thumb-rest of the slide-piece with the thumb when throwing down the actuating-lever for locking the breech-bolt. A cartridge is thereby brought in line with the right-hand opening of the receiver, ready to be dropped at the moment when, by the backward motion of the breech-bolt, the shell is extracted and thrown out through the opening at the opposite side. The cartridges are thus dropped into position in the shoe or receiver one after the other and carried by the forward motion of the breech-bolt into proper position for being fired. By using two magazines, and replacing the first as soon as discharged with the second magazine, forty shots can be delivered in rapid succession. The magazine is worked in connection with the lever of the breech-bolt, is not in the way of handling the gun, and supplies the person using the arm whenever rapid firing is desired with a well-charged magazine, while admitting at other times the use of the gun for firing in the usual manner.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a breech-loading fire-arm, a detachable magazine provided with a revolving belt and cups for carrying cartridges to the receiver, said belt revolving upon two pulleys, one of which is provided with a ratchet-wheel to be driven one notch at a time by the operator, substantially as described.

2. In a breech-loading fire-arm, a detachable magazine provided with a cartridge-carrying belt and ratchet-wheel, in combination with a lever or other device for operating the same, located in the described relation to the breech-closing lever, so that the thumb of the operator may strike and operate it in the act of closing the breech, substantially as described.

3. In a breech-loading fire-arm provided with a detachable magazine, the combination of a belt carrying cartridges by means of cups attached to the belt, two pulleys for said belt to run on, a ratchet-wheel connected to one of said pulleys, and lever and pawl operated by a pressure of the operator's thumb to rotate the pulley, and a spring for returning the same, substantially as described.

4. An elongated magazine for attachment to a breech-loading fire-arm, having a sliding bolt for locking to the gun, an endless belt passing around two pulleys within the elongated case for conveying the cartridges, and the ratchet and lever operating devices for the belt, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 28th day of July, 1881.

PHILIPP BOCH.

Witnesses:
PAUL GOEPEL,
CARL KARP.