

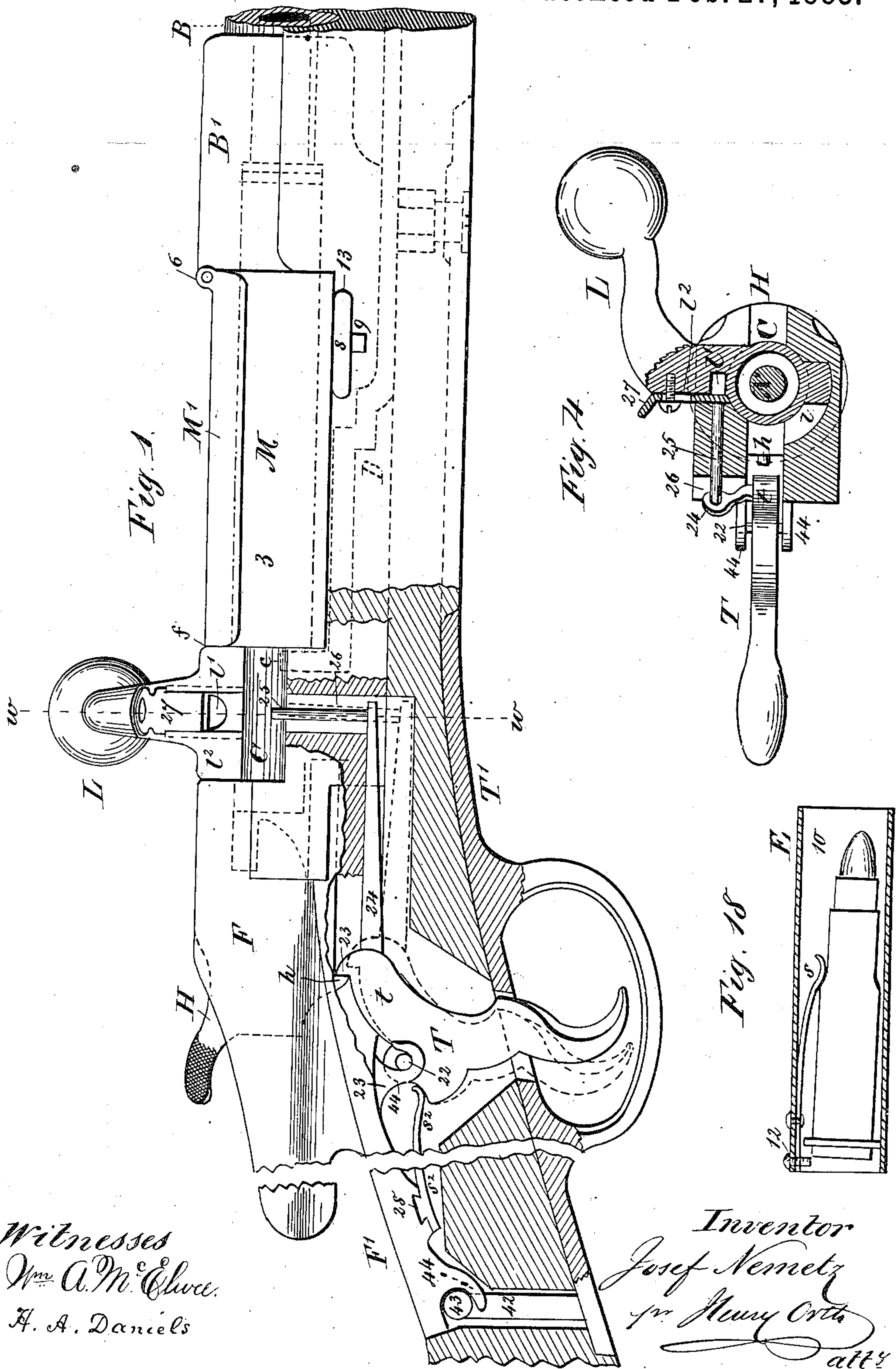
(No Model.)

4 Sheets—Sheet 1.

J. NEMETZ.
MAGAZINE GUN.

No. 273,131.

Patented Feb. 27, 1883.



Witnesses
Wm. A. M. Clive.
H. A. Daniels

Inventor
Josef Nemetz
per Henry Orth
att'y

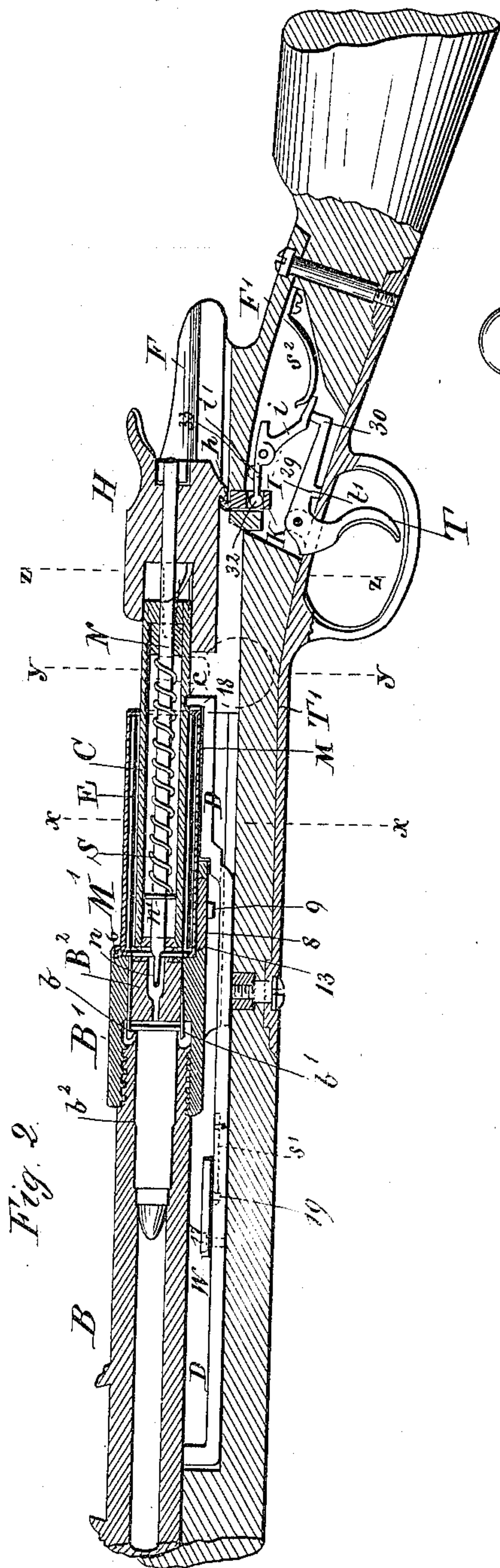
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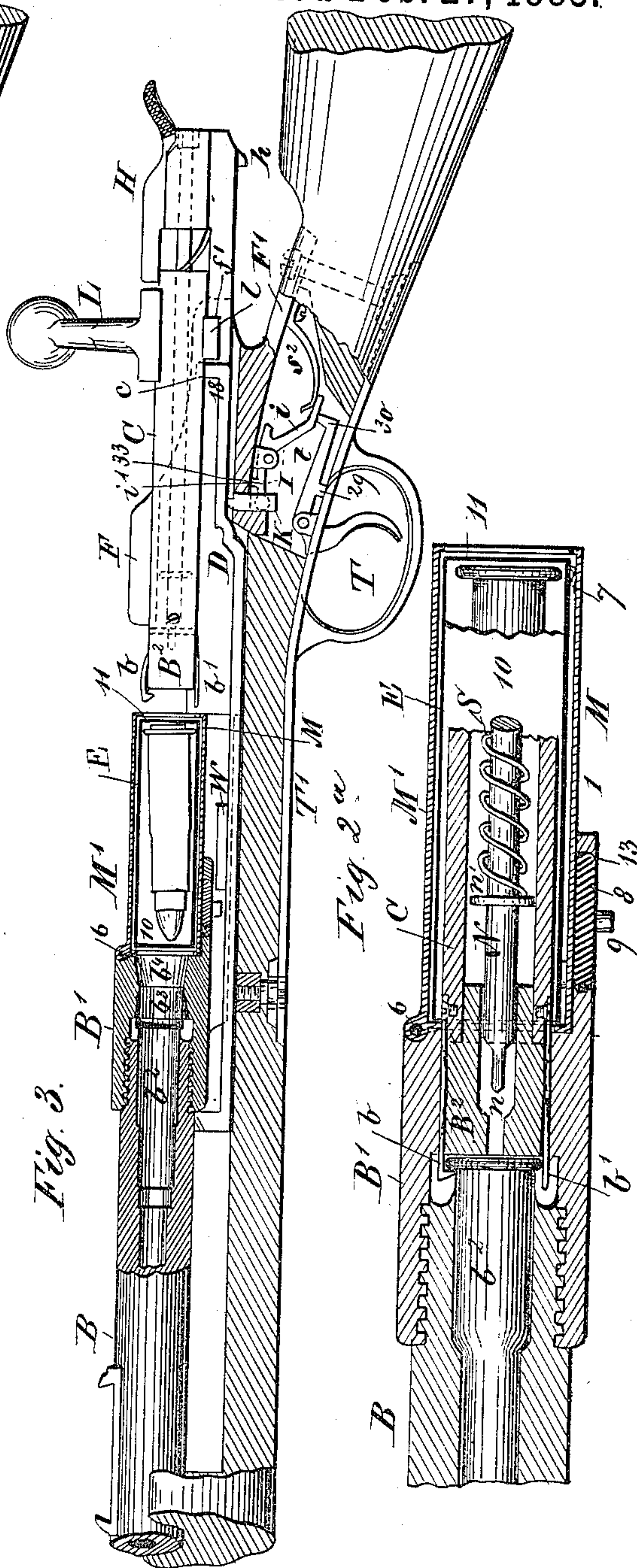
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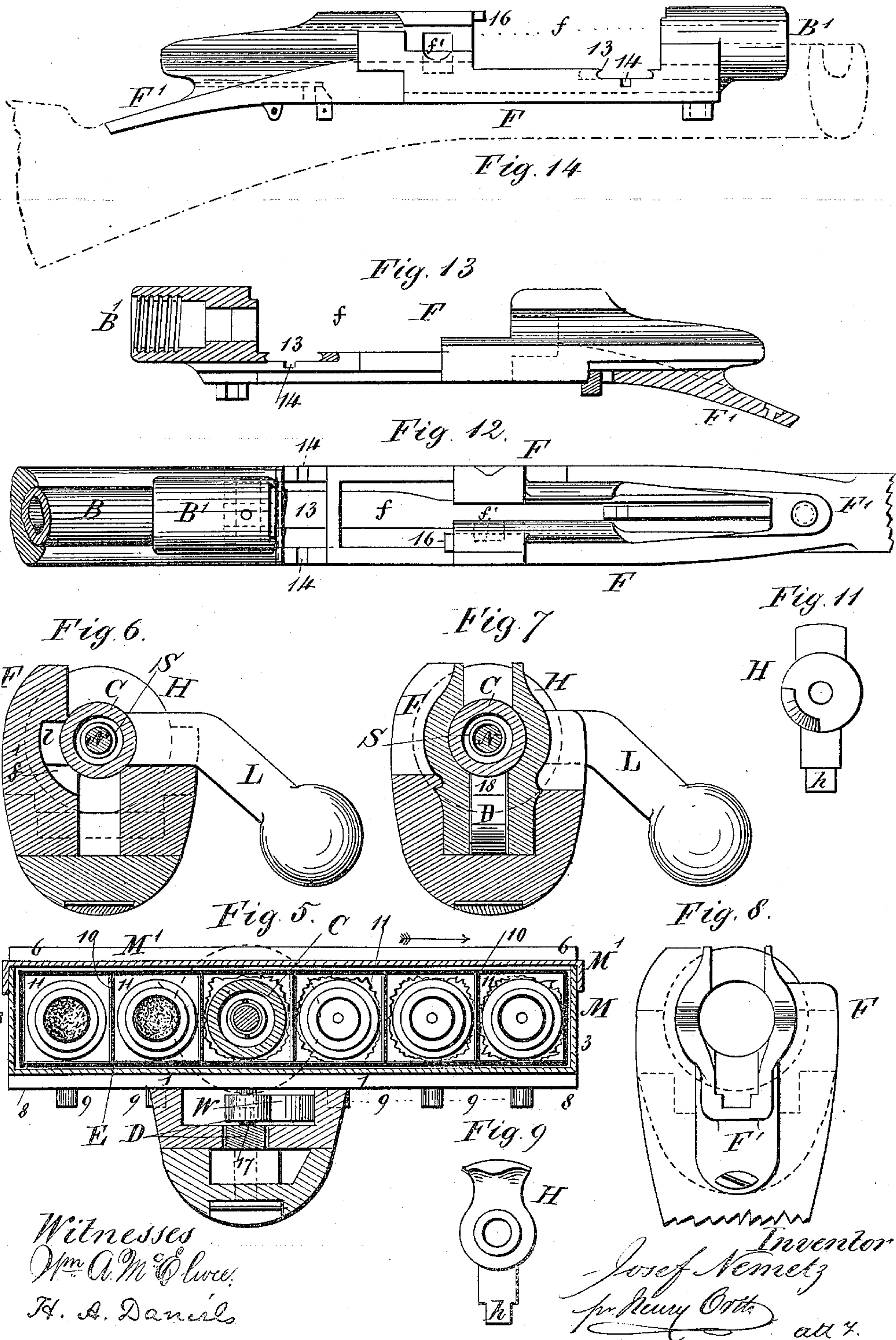
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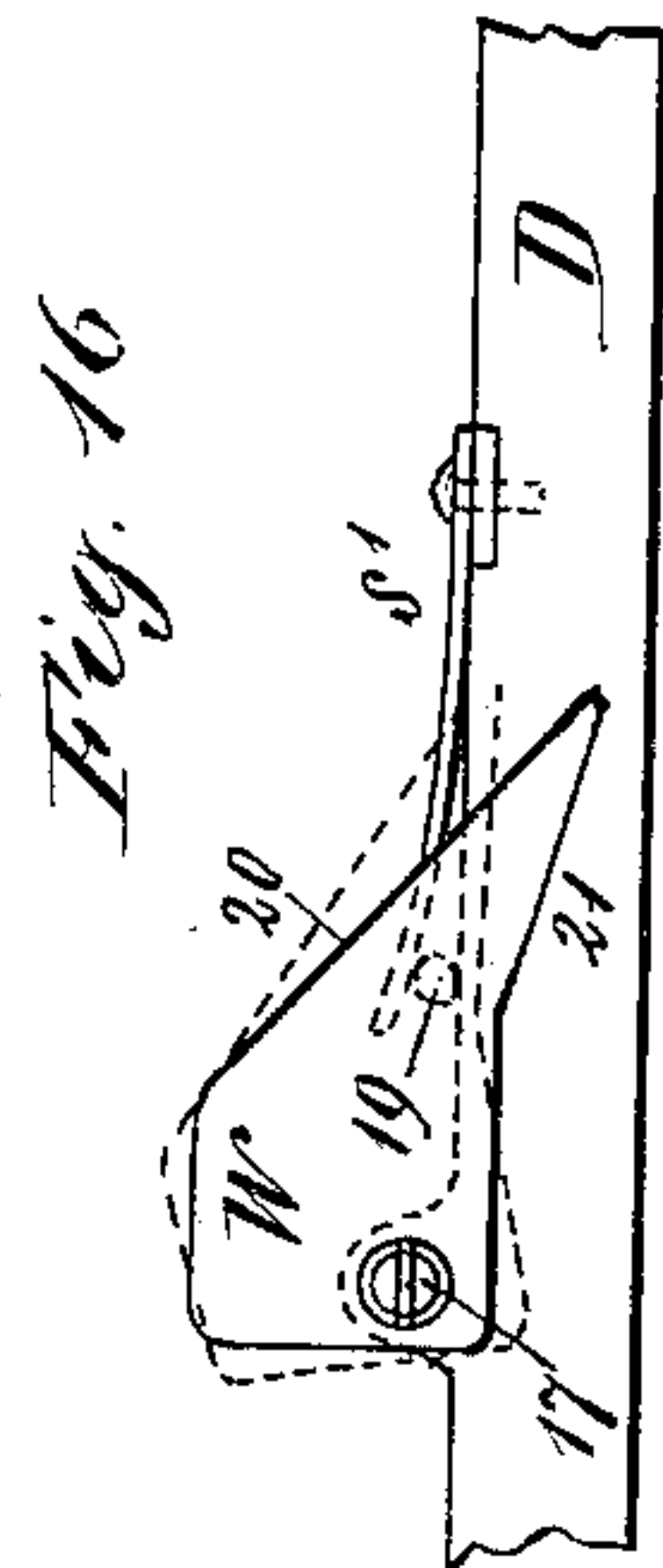
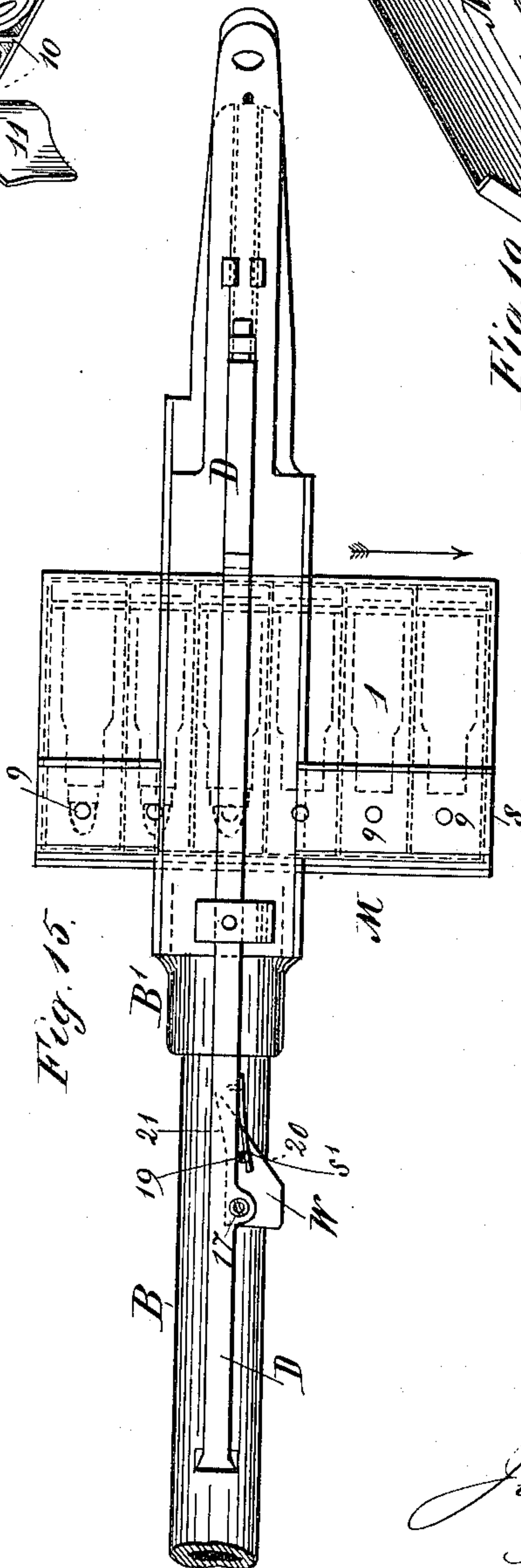
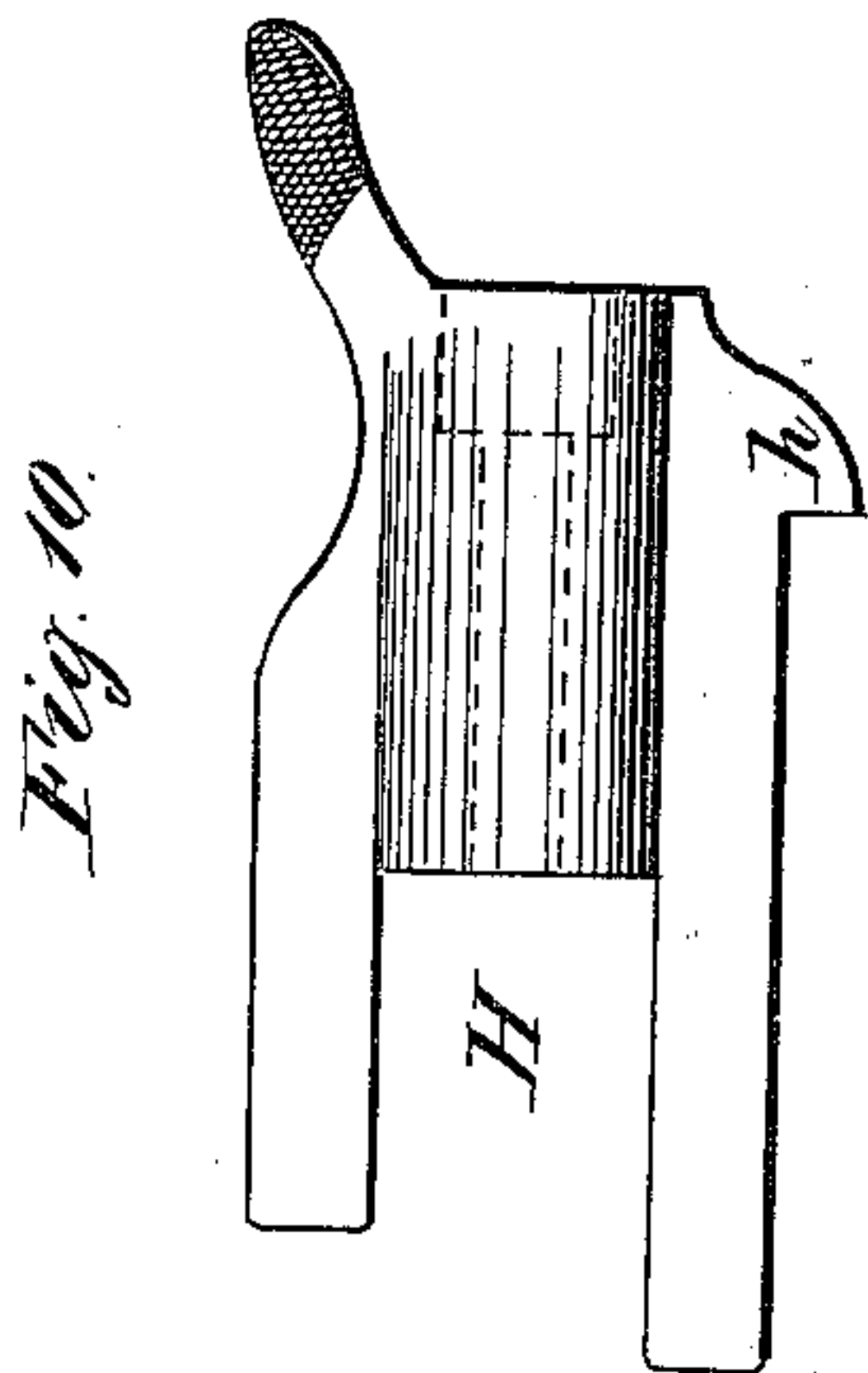
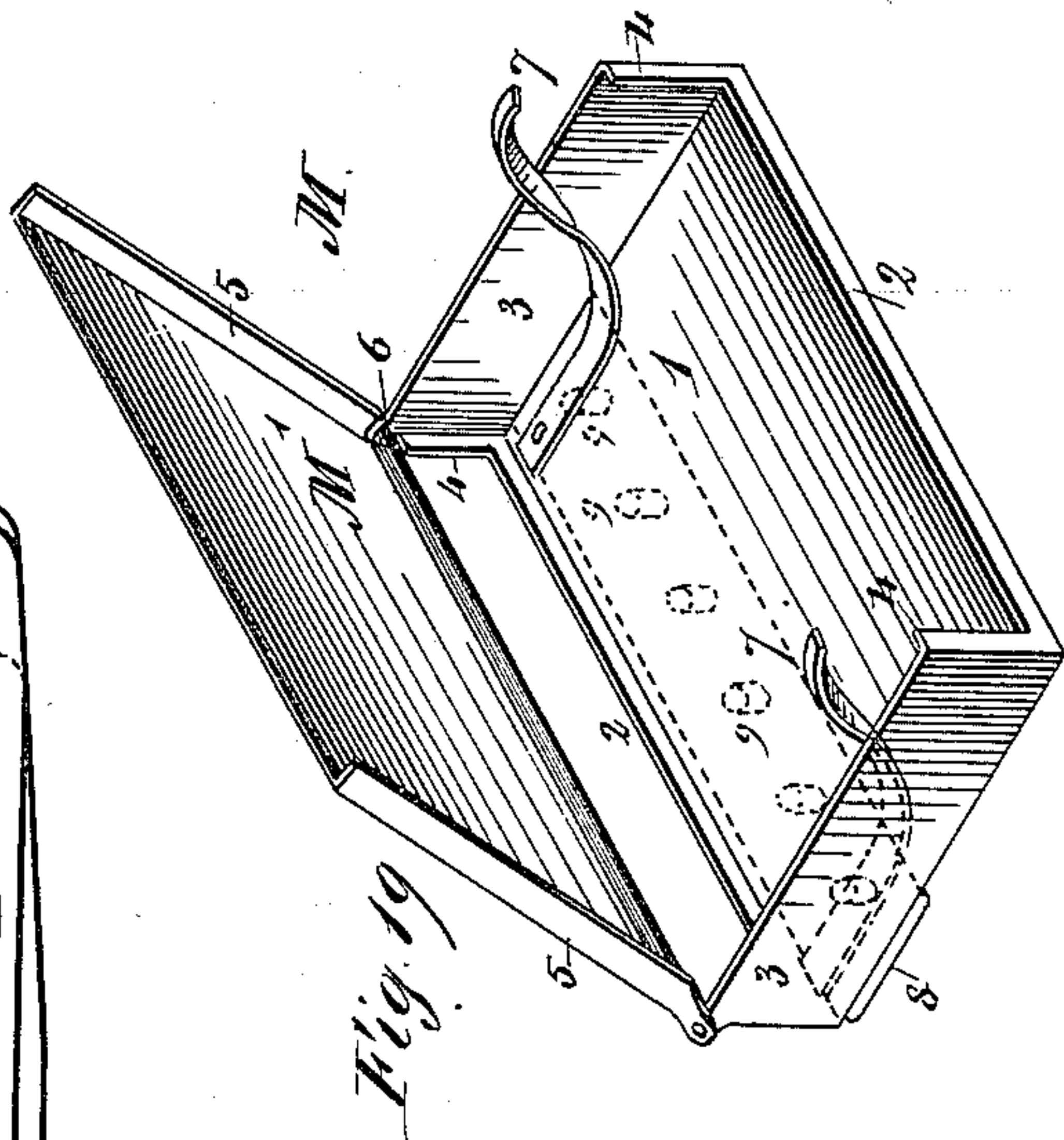
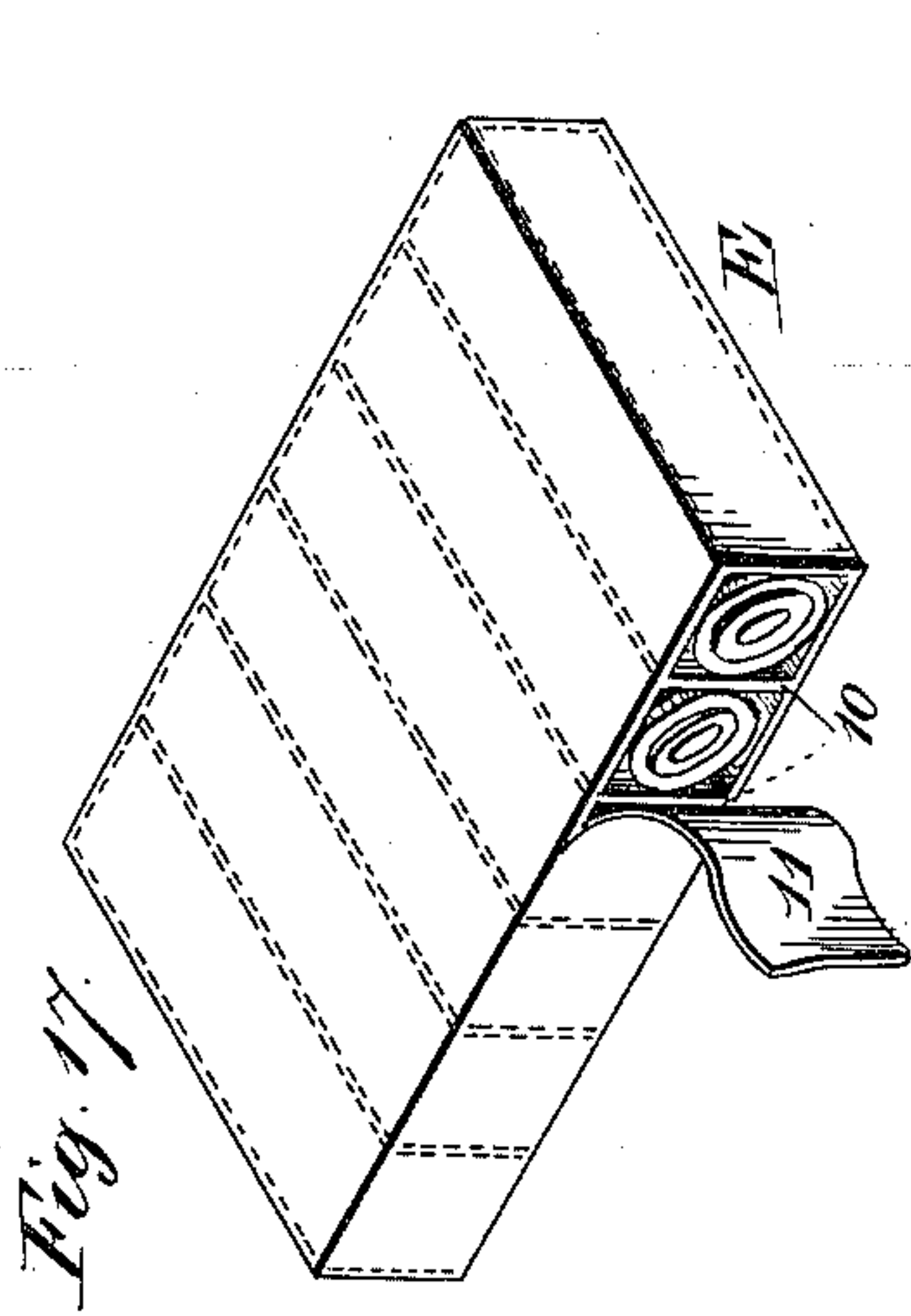
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4 Sheets—Sheet 4.

J. NEMETZ.
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No. 273,131.

Patented Feb. 27, 1883.



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UNITED STATES PATENT OFFICE.

JOSEF NEMETZ, OF VIENNA, AUSTRIA-HUNGARY.

MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 273,131, dated February 27, 1883.

Application filed March 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOSEF NEMETZ, a citizen of Austria, residing at Vienna, in the Empire of Austria, have invented certain new and useful Improvements in Breech-Loading Needle-Guns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in that class of breech-loading guns known as "bolt" or "needle" guns.

The object of my invention is to still further reduce the movements now necessary to load and fire such guns, and further to simplify the construction of the various parts of the mechanism of the gun, which objects I attain as follows: First, by combining with the usual bolt or needle and the breech a magazine adapted to be moved at right angles to the axis of the bolt or needle and barrel to bring a fresh cartridge into position to be carried forward into the firing-chamber by the said bolt; second, by constructing and combining these parts in such manner as to cause the bolt, on its forward movement, to carry the cartridge from the magazine into the firing-chamber and explode said cartridge automatically by the locking of the breech-cylinder, to retract the cartridge-shell from said chamber on its backward movement, open the breech and deposit said shell into the magazine-chamber from whence it was taken, move the magazine laterally a distance sufficient to bring a fresh cartridge into position to be carried forward, and lock the firing-pin ready for firing, thus reducing the movements necessary to load and fire the gun to two, as hereinafter more fully described; third, by constructing the sear-spring and breech-frame strap in such manner as to dispense with the usual screw whereby the parts are attached; fourth, by constructing the breech-frame strap and trigger-guard strap in such manner that but a single screw is needed to attach the trigger-guard strap, the magazine, the firing mechanism, and its frame to the stock of the gun.

In the specification and drawings of Letters Patent granted to me under date of March 7, 1882, No. 254,681, I have described and shown a gun provided with a magazine adapted to be moved at right angles to the axis of the barrel, the magazine constituting the breech or firing-chamber. In such a construction it is necessary that the magazine should be made sufficiently strong and heavy to resist the shock resulting from the explosion of the cartridges, and consequently the weight of the magazine considerably increases that of the gun.

The further object of my present invention is to so construct the gun and its firing mechanism as to adapt them for use in combination with a magazine interposed between the breech and the bolt and firing-pin, said magazine being constructed of such light material as not to materially increase the weight of the gun.

The invention consists in the mechanism and combination of mechanisms and construction of parts whereby the above-described results are obtained, as fully described herein-after, and pointed out in the claims, and as shown in the accompanying four sheets of drawings, in which—

Figure 1 is a sectional side elevation of a magazine needle-gun adapted for automatic firing by the locking of the bolt, or for firing by means of the trigger. Fig. 2 is a longitudinal section of a magazine needle-gun to be fired by means of the trigger only, the parts being shown in the position ready for firing; and Fig. 3, a similar view with breech open. Fig. 2^a is a part thereof enlarged. Fig. 4 is a section of the gun, taken on line *ww* of Fig. 1. Fig. 5 is a section of the gun, taken on line *xx* of Fig. 2. Fig. 6 is a section of the gun, taken on line *yy* of Fig. 2. Fig. 7 is a section of the gun, taken on line *zz* of Fig. 2. Fig. 8 is a rear view of the breech-frame. Figs. 9, 10, and 11 are detail views of the bolt-carrier. Fig. 12 is a top plan view; Fig. 13, a longitudinal section; Fig. 14, a side elevation; and Fig. 15, an under side view of the breech-frame, the latter figure showing the magazine applied. Fig. 16 is an under side view of the rod and wedge employed to move the cartridge-magazine. Fig. 17 is a perspective view of the cartridge-carrier. Fig. 18 is a longitudinal section there-

of, and Fig. 19 is a perspective view of the cartridge-magazine.

In the above figures of drawings like letters of reference indicate like parts wherever such may occur.

B is the barrel; B', the receiver; M, the magazine abutting against the receiver; C, the bolt, carrying at its forward end the breech-block B², or of which said block forms the forward end, the breech-block being perforated, as usual, for the passage of the firing-pin or needle N. The latter is, as usual, impelled by a coiled spring, S, one end of which abuts against a collar, n', on said pin and the other against the rear end of the bolt, as shown in Fig. 2. The firing-pin N slides freely in the bolt, and its rear end is attached to the carrier or hammer H, apertured to receive the rear end of the bolt C. The hammer is provided on its under side with a stop or shoulder, h, adapted to engage with the mechanism whereby the hammer and bolt are locked into position for firing, as hereinafter described. The magazine M is moved laterally by means of a wedge, W, attached to a bar, D.

L is the handle or locking-lever, attached to bolt C, by means of which the latter is locked into position before firing, and through the medium of which the gun may be automatically fired, as will be presently explained.

The combination of the magazine M with the firing mechanism is such that at each forward movement of the bolt it will pass through the magazine and carry a fresh cartridge into the breech or firing-chamber. Hence the magazine does not constitute said firing-chamber, and may therefore be constructed of any suitable light material.

Referring more particularly to Figs. 1, 2, 3, 15, and 19, the magazine M is constructed of sheet metal, and is composed of a bottom, 1, having its front and rear edges struck up to form vertical flanges 2, and of two sides, 3, having their front and rear vertical edges turned inward to form the flanges 4. To this box or frame, which is open at top and in front and rear, is hinged a lid, M', having its opposite side edges turned down to form flanges 5. The sides 3 of the magazine are provided at their upper front corners with lugs or pivot-bearings 6, and the corresponding edges of the lid M' are provided with like lugs or bearings, whereby the two may be hinged together, as shown in Fig. 19. The two parts that constitute the magazine may each be struck from a single piece of sheet metal. Upon opposite sides of the bottom 1 of the magazine are attached springs 7, for ejecting the cartridge-carrier when all the cartridges have been fired. Upon the under side of the magazine is attached a bar or plate, 8, provided with as many pins 9 as the magazine will contain cartridges. As shown, it is provided with six pins, the magazine being of such size as to contain six cartridges. Of course it will be understood that a magazine containing a greater or less

number of cartridges may be employed. The magazine is fitted in a recess in the breech-frame F, that has a dovetailed groove or way, 13, in which fits the plate 8 on the under side of the magazine, the bottom of said groove being recessed, as shown at 14, to allow the pins 9 to pass when the magazine is moved laterally. The magazine is securely held in the breech-frame by means of said groove 13, on the one hand, which may be dovetailed, as described, or of the form shown, and on the other by means of a lug, 16, on said frame. The bar 8, being attached to the magazine at or near its forward edge, will therefore hold the magazine at that edge against vertical displacement, while the lug 16, bearing on the free end of the lid M', not only prevents the springs from exerting their power against the carrier E and lid, but also holds the rear edge of the magazine against vertical displacement. As more plainly shown by Figs. 12 and 14, this lug 16 is formed on or attached to the face of one of the cheeks forming the rear wall of the recess f in the breech-frame F, in which the magazine slides. When the last cartridge has been fired the magazine will have moved from left to right sufficiently to clear the lug 16 and release the lid. The springs 7, being now free to act, eject the carrier and the latter throws open the lid M', leaving the magazine ready to be reloaded. This is effected by introducing a fresh carrier, E, the heavy or ball end thereof being placed toward the front or upon the free end of the springs 7 of the magazine, the lid (and with it the cartridge-carrier and springs) being then pressed down and the magazine pushed from right to left until the first cartridge on the right is in front of the receiver B'. The magazine M is moved laterally a distance equal to that between the centers of two cartridge-chambers at each backward movement of the bolt by the following mechanism, constructed and operating upon the same principle as that described in my Letters Patent hereinbefore referred to.

A bar, D, carries a wedge, W, pivoted upon said bar at 17. The rear end of the bar is bent at right angles to form the catch or lug 18, that lies in a recess, c, of the bolt C, as shown in dotted lines, Fig. 1, and in full lines, Figs. 2 and 3. The wedge W, as shown in Fig. 16, is held in proper position by means of a spring, s', attached to the bar D, the free end of which exerts its power upon a pin, 19, on the wedge. This spring also serves as an abutment for the wedge during its action. When the bolt is moved backward the bar D is moved with it, and as soon as said bolt has moved out of the magazine the outer end of the inclined plane of the wedge comes in contact with one of the pins 9 on the under side of the magazine and moves the latter from the left toward the right a sufficient distance to bring a fresh cartridge in front of the breech, to be carried forward into said breech at the next forward movement of the bolt, the forward end or breech-

block, B^2 , of which carries the extractor-hook b and the spring b' . The extractor and spring are of usual construction, and are secured in recesses formed in opposite sides of the part B^2 of the bolt, as shown in Figs. 2 and 3. The spring b' is used as a bearing for the flange of the cartridge on the side opposite to that where it is seized by the extractor, to maintain said cartridge in a true horizontal position and avoid any tendency of the cartridge-shell to become wedged in the firing-chamber or receiver when the bolt moves backward. Thus, when the magazine has been moved laterally to bring a fresh cartridge on a line with the axis of the barrel, as described, and the bolt is moved forward by means of the lever L , the point of the extractor b and spring b' will first perforate that part of the strip of paper 11 that covers the rear face of the compartment of the cartridge which has just been brought into proper position. The bolt then breaks said paper and moves the cartridge along with it, the ball thereof breaking the paper in front of said compartment, and said cartridge is thus carried into the firing-chamber b^2 , its flange lying against the annular shoulder that serves as a bearing therefor, and the extractor b and spring b' in engagement with said flange, as shown in Fig. 2. To insure the engagement of the extractor-hook and that of the spring with the flange of the cartridge as it is carried into the firing-chamber, and to cause said hook and spring to release the cartridge-shell when the bolt is drawn back, and deposit said shell into the magazine, I make the annular chamber of the receiver B' tapering from opposite ends toward the center, as shown at $b^3 b^4$, Fig. 3, at which latter point said chamber is narrowest. As will be readily seen, when the cartridge has reached the firing-chamber the extractor b and spring b' are held to the flange of the cartridge by said narrow part of the chamber, and on withdrawing the bolt the hook and spring are gradually released from the shell as the bolt recedes through the gradually-widening rear end of the receiver-chamber until said shell again lies within the compartment of the magazine from which it had been previously taken, when the extractor devices will be entirely disengaged from the flange. The bolt then moves backward, leaving the cartridge-shell behind.

In order to distribute the force of the recoil more evenly over the breech-frame F , I form on or attach to the bolt C , opposite the locking-lever L , a lug or block, l , that lies in a recess, f' , of the breech-frame, Figs. 3, 6, 12, and 14, when the bolt is locked into position for firing, and I obtain in this manner a so-called "bolt-lock." On the retraction of the bolt the lug serves as a guide for the bolt to properly guide it along the frame F .

The lock of the gun is composed of a trigger, T , having a fulcrum pin, 22, hung upon hooked cheeks 23, formed on the rear strap, F' , of the frame F , instead of being pivoted on

a screw, as usual. The upper arm, t , of the trigger is provided with a shoulder that engages the full-cock notch or catch h on the bolt-carrier H . A second arm, 24, projects laterally from the arm t , and is provided with a vertical pin, 25. The arm 24 moves in a recess, l' , formed exactly in the center of the bearing-face l^2 of the locking-lever L , that serves to lock the bolt C , of which latter said lever forms a part, or to which it is attached. This bearing-surface l^2 of lever L is provided with a slide, 27, adapted to cover the recess l' under certain circumstances, and instead of the slide a catch or pawl or analogous device may be employed.

The sear-spring s^2 is not secured to the lock-case by means of a screw, as usual, but simply inserted, whereby the screw is dispensed with, the breech-frame strap F' being provided with a dovetailed groove, 28, and the heel end of the spring being constructed to fit said groove, as shown in Fig. 1.

When the slide 27 is in the position shown in Fig. 1 the pin 25 can penetrate into the recess when the bolt is locked into the position for firing. Consequently the firing cannot be effected except by pulling upon the trigger T , which movement disengages the upper arm, t , thereof from the catch h of the hammer H and simultaneously withdraws the pin from the recess l' , as shown in Fig. 1. When, however, as shown in Fig. 4, the slide is pushed in to cover the recess l' and the bolt is rotated to lock it into position for firing, the said slide, when the locking is effected, will bear upon the pin 25, depress the same, and with it the trigger-arm t , to automatically throw the latter out of disengagement with the full-cock catch on the hammer. This releases the hammer and its needle N , which, by the tension of the spring S , are thrown forward to explode the cartridge. The position of the pin and trigger when automatically disengaged from the hammer is shown in dotted lines in Fig. 1, and in this manner the gun may be automatically fired by the locking of the bolt.

In Figs. 2 and 3 I have shown a slight modification in the construction of the gun-lock, which is not designed for automatic firing. The trigger T has a rearwardly-projecting arm, t' , provided on its lower face with an abutment, 29, that holds the arm in proper position by contact with the trigger-guard strap T' . The arm terminates in an upwardly-projecting nose, 30, that engages a downwardly-projecting arm, i , of a two-armed lever, I , pivoted at 31. The horizontal forward arm, i' , of the lever I terminates in a spherical head, 32, that lies within a recess of the slide-catch K . Upon its upper face the arm i' has also an abutment, 33, that bears against the under face of the breech-frame F , to hold the lever in proper relation to the slide-catch, the sear-spring s^2 holding the parts in proper position for engaging the shoulder h on the hammer H , as shown. It will be seen that when the trigger is pulled

its nose 30 raises the arm *i* of lever I and correspondingly depresses the arm *i'* thereof. This moves the slide-catch K downward to release the hammer, as plainly shown in Figs. 2 and 3.

Instead of a cross bolt or screw, as shown in Figs. 2 and 3, for securing the breech-frame and guard-straps to the stock, I preferably employ a post, 42, formed on or attached to the guard-strap T', the upper end of which has two lugs, 43, adapted to engage hooked cheeks 44, formed on the frame-strap T, as shown in Fig. 1. It will be seen that by means of this construction but a single screw is necessary to attach the breech-frame, the firing mechanism, the magazine, and the trigger-guard strap to the stock.

From what has been said above, it is understood that but two movements are necessary to unlock the breech, extract the exploded shell, carry a fresh cartridge into the firing-chamber, lock the breech, and fire the gun, as follows: Assuming that the gun has just been fired, a quarter-turn is imparted to the bolt by means of the lever or handle L to unlock the breech, when the bolt and needle are retracted, and with them the empty cartridge-shell, through the medium of the extractor *b* *b'*, and said shell deposited into the magazine. The backward movement of the bolt also causes a lateral movement to be imparted to the magazine, which brings a fresh cartridge on a line with the breech. The completion of the backward movement of the bolt effects the engagement of the trigger with the full-cock notch on the hammer, and this completes the first movement. The second movement consists in moving the bolt forward again to carry a fresh cartridge into the firing-chamber and completing the movement by imparting a quarter-turn to the bolt to lock the breech, and at the same time fire the gun, as hereinbefore set forth.

Of course it will be understood that the gun may be used as an ordinary breech-loader by removing the magazine, and, instead of using the cartridge-carrier E in combination with the magazine, the former may be dispensed with and the latter provided with chambers to receive each a cartridge. In this case each chamber is provided with the spring and pin shown as applied to the carrier E, to prevent the cartridges from falling out.

It is obvious that the use of a case containing all the cartridges the magazine will hold is more advantageous, as the magazine may be provided with a full complement of cartridges in the same time it would require to load one of its chambers when said cartridges are to be inserted one by one, while an additional loss of time would result in the corresponding removal of the shells, as it would not be practicable to provide each chamber with an ejector-spring.

When the gun is constructed for automatic firing by the locking of the breech the form of

the trigger may be so modified as to dispense with the finger-piece, and, if desired, the magazine may be removed and the gun used as a single-loader.

As hereinbefore stated, the cartridges are preferably contained in a case or carrier, E, Figs. 17 and 18, isolated from each other by partitions 10. The case E is made of cardboard and of such form as to fit the inside of the magazine, where it is securely held by the flanges 2 and 4 and the lid thereof. The front and rear ends of the case may be closed by a strip of paper, 11, as shown by Fig. 17, or these ends may be left open and each cartridge held within its compartment by means of a spring, *s*, and a pin, 12, as shown in Fig. 18, the free end of the spring bearing upon the cartridge to prevent its moving in one direction and the pin holding the cartridge against movement in a reverse direction, as plainly shown in said Fig. 18. If desired, both the above-described means may be employed to prevent the cartridges from falling out of the carrier while handling the latter.

Instead of making the cases E of card-board, they may be constructed of any other suitable light material—such as thin sheet metal—and when so constructed the carrier may be used repeatedly.

Having now described my invention, what I claim is—

1. In a bolt or needle gun, the combination, with the barrel, the breech or receiver, the breech-frame, a magazine arranged in said frame in rear of the receiver, and mechanism, substantially as described, to impart a lateral movement to the magazine, of a bolt adapted to traverse the magazine and carry a cartridge into the receiver at each forward movement, remove the empty shell from the breech, and move the magazine laterally at each backward movement to bring a fresh cartridge on a line with the receiver; substantially as described.

2. In a bolt or needle gun, the combination, with the barrel, the receiver, the breech-frame, a chambered magazine carried by said frame in rear of the receiver, and mechanism, substantially as described, for imparting lateral motion to said magazine, of a bolt adapted to traverse the magazine, carry a cartridge from one of its chambers into the breech at each forward movement, extract the empty shell, and deposit it into the chamber from which it was taken, and move the magazine laterally to bring a fresh cartridge on a line with the breech at each backward movement, substantially as described.

3. In a bolt or needle gun, the combination, with the barrel, a magazine, and a chambered cartridge-carrier contained therein, of the breech-frame mechanism, substantially as described, for imparting a traversing motion to said magazine, and appliances whereby the carrier is automatically ejected from the magazine when the latter has reached the limit of

its traversing motion in one direction, substantially as described, for the purposes specified.

4. In a bolt or needle gun, a magazine, M, arranged transversely of the breech, and open in front and rear, and having a movable lid, a chambered cartridge-carrier located within the magazine, and the breech-frame provided with a lug to hold the magazine-lid closed, all combined for co-operation substantially as and for the purposes specified.

5. In a bolt or needle gun, the combination of a magazine open in front and rear, located transversely of the breech, a chambered cartridge-case having the front and rear ends of the chambers closed by a diaphragm, and the bolt provided at its forward end with perforating devices, whereby when said bolt is moved forward to close the breech the rear diaphragm is first perforated and then ruptured, the cartridge moved forward with and by the bolt, and the front diaphragm of its chamber ruptured by the ball of the cartridge, and the latter carried into the firing-chamber, as set forth.

6. In a bolt or needle gun, the combination, with the bolt and breech-frame provided with a lug, 16, of a magazine operated to move at right angles to said bolt, said magazine being open at both ends and provided with a movable lid, and a spring-actuated cartridge-carrier fitted into said magazine, said parts operating to hold the magazine closed until its lid has cleared the lug on the frame, as and for the purposes specified.

7. The cartridge-carrier E, divided into a series of chambers open at both ends, as described, in combination with the springs s and pins 12, substantially as and for the purposes set forth.

8. The combination, with the magazine M, its actuating-springs 7, and lid M', of the breech-frame F, having lug 16, as and for the purposes specified.

9. In a bolt or needle gun, the combination of a magazine having a hinged lid, M', and actuating-springs 7, and a cartridge-carrier contained therein, with the breech-frame mechanism, substantially as described, for imparting a traversing motion to the magazine, and appliances for releasing the magazine-lid and to allow the springs to eject the carrier when the magazine has reached the limit of its traversing motion, substantially as set forth.

10. The combination of the breech-frame and its lug 16 and grooves 13 and 14 with the magazine M, having plate 6, carrying pins 9, and the hinged lid M' of said magazine, substantially as and for the purposes specified.

11. In a bolt or needle gun, the combination,

with the bolt, the breech, and breech-frame, of the cartridge-magazine M, composed of the frame 13, having flanges 3 4 and a hinged lid, M', a cartridge-carrier, E, contained therein, and mechanism, substantially such as described, for imparting a traversing motion to said magazine in rear of the breech, as and for the purposes specified.

12. The combination, with the breech-frame F, the recess f of which is provided with grooves 13 and 14 and a lug, 16, and the bolt C of the magazine M, having plate 8, carrying pins 9, and mechanism to move the magazine laterally through the medium of the bolt, as described.

13. The combination, with the magazine M and bolt C, of the bar D, wedge W, provided with a pin, and the spring s', all constructed and arranged for co-operation substantially as and for the purposes specified.

14. The combination, with the bolt, its spring-actuated needle, the operating-lever L, recessed, as at U, the slide 27, and hammer H, having shoulder h, of the trigger T, having arms t 24, and the pin 25, said parts being arranged for co-operation as described.

15. The combination, with the bolt, its operating-lever, recessed at U, the slide 27, the hammer H, and spring-actuated needle N, of the pivoted lever-arms t 24 and the pin 25, said parts being arranged for co-operation as described.

16. In a gun of the class described, the combination, with the barrel, its breech, a magazine having a traversing motion in rear of said breech, a bolt arranged to traverse the magazine, and having an operating-lever, recessed as at U, and means to close said recess, a spring-actuated needle, and a hammer provided with a full-cock notch, of a trigger adapted to engage said full-cock notch, and carrying a pin arranged to project into the recess of the operating-lever for the bolt, whereby the gun may be fired in the usual manner when said recess is uncovered, or whereby it may be fired on rotating the bolt to lock the breech when said recess is covered, substantially as described.

17. The combination of the receiver B', having its axial passage made to taper from opposite ends toward the center, in combination with the bolt and its breech-block B², carrying the extractor b and bearing-spring b', as and for the purposes specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEF NEMETZ.

Witnesses:

HANS KOTTAS,

JAMES RILEY WEAVER.