

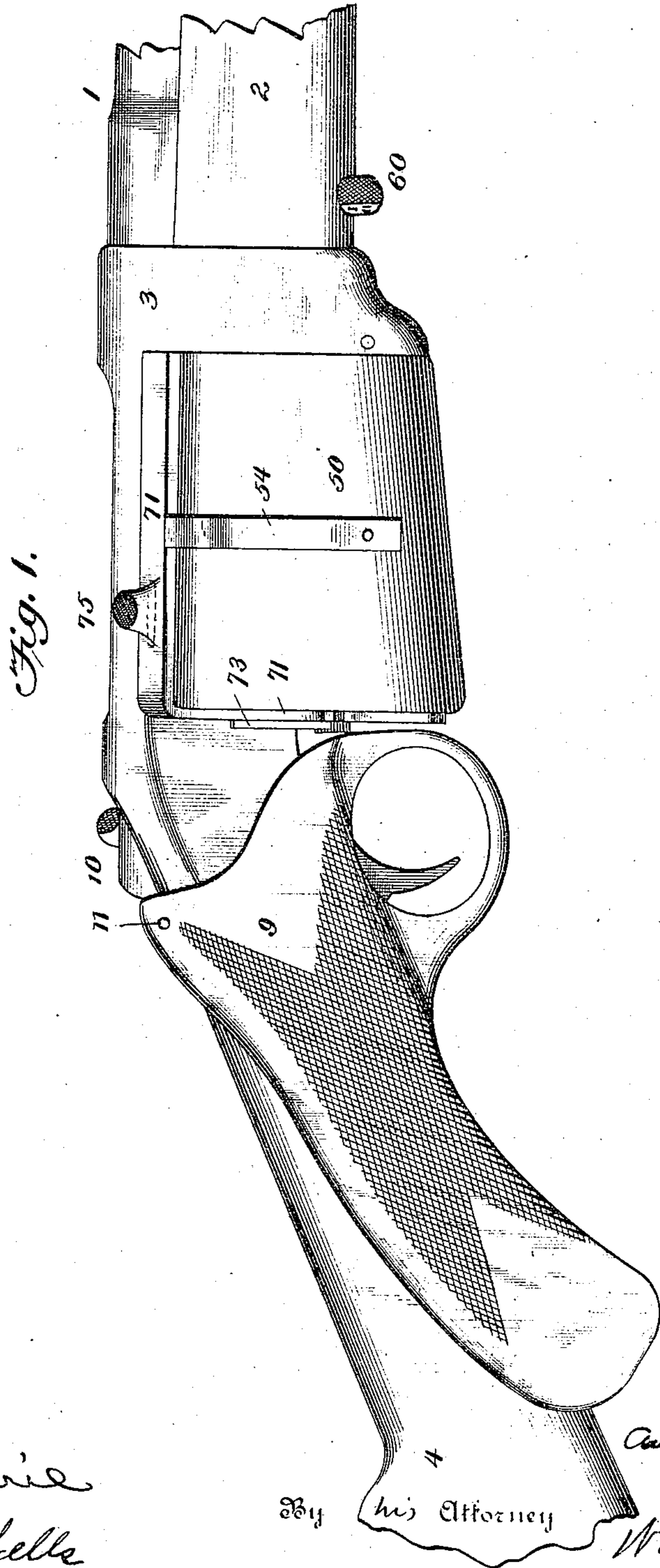
(No Model.)

3 Sheets—Sheet 1.

A. BURGESS.
MAGAZINE FIREARM.

No. 557,358.

Patented Mar. 31, 1896.



Witnesses

John D. Miller
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By *W. A. Bartlett*
his Attorney

(No Model.)

3 Sheets—Sheet 2.

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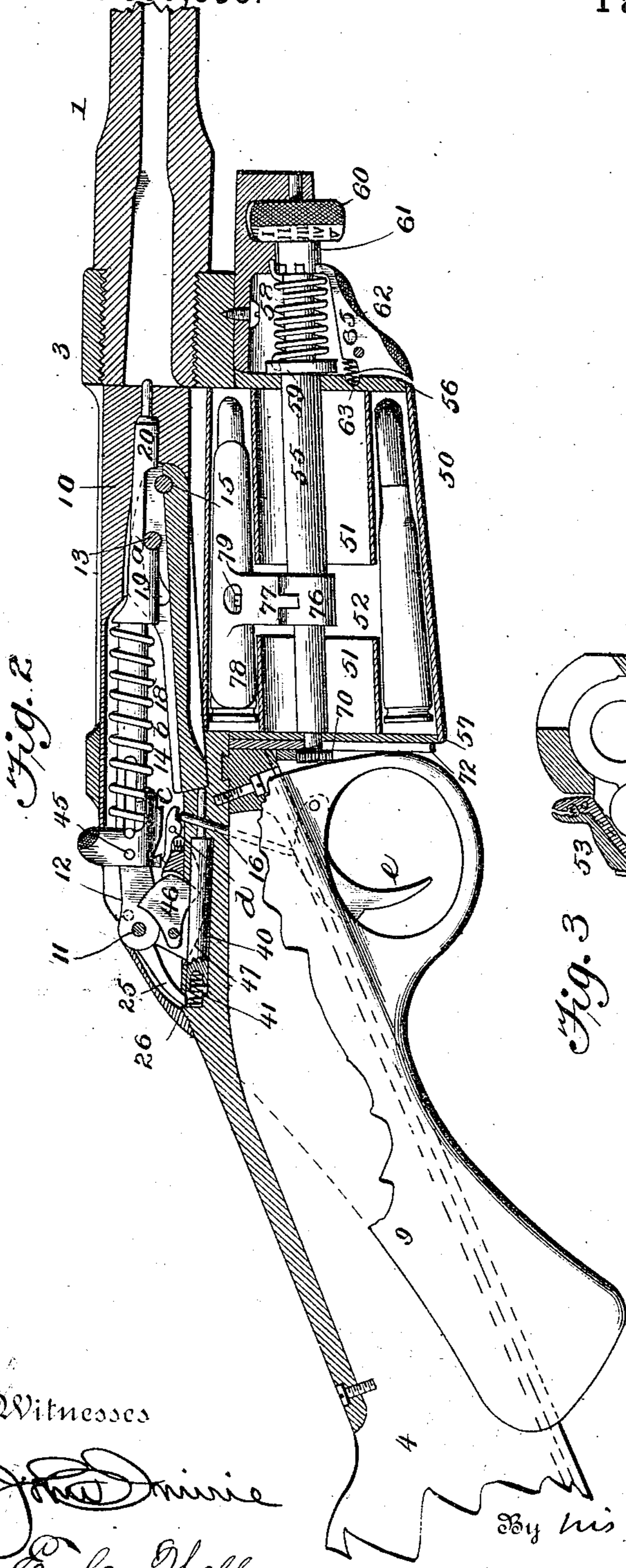


Fig. 2

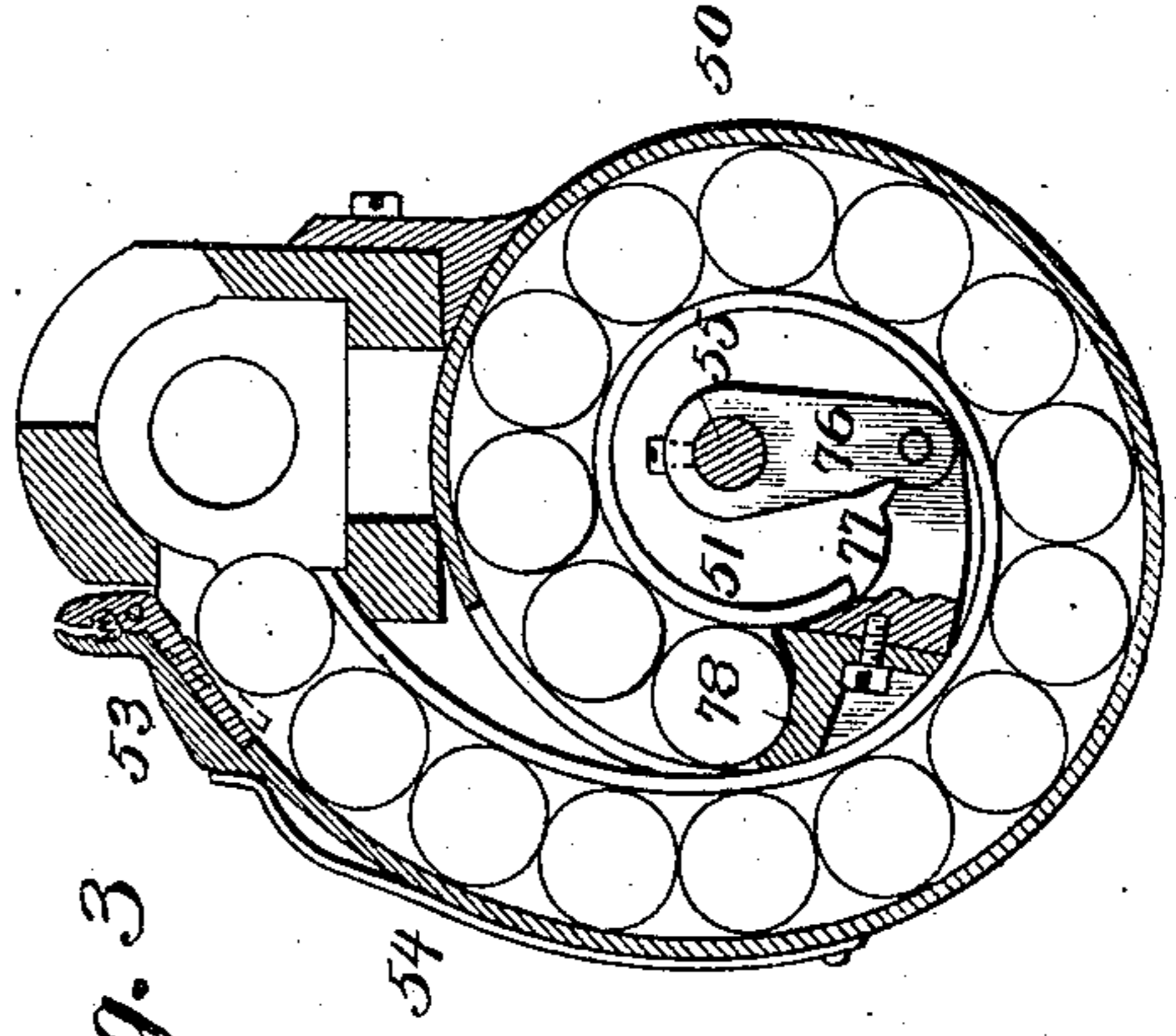


Fig. 3

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Fig. 5

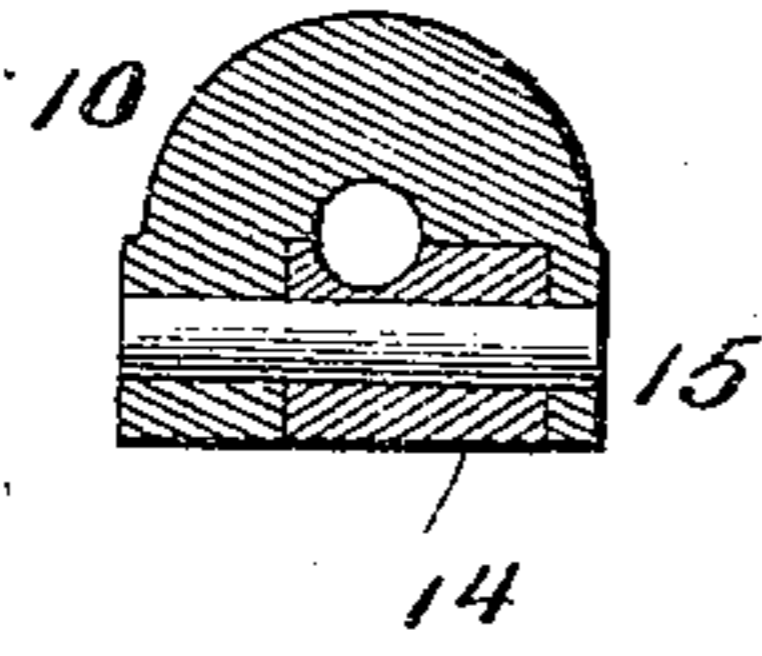


Fig. 6

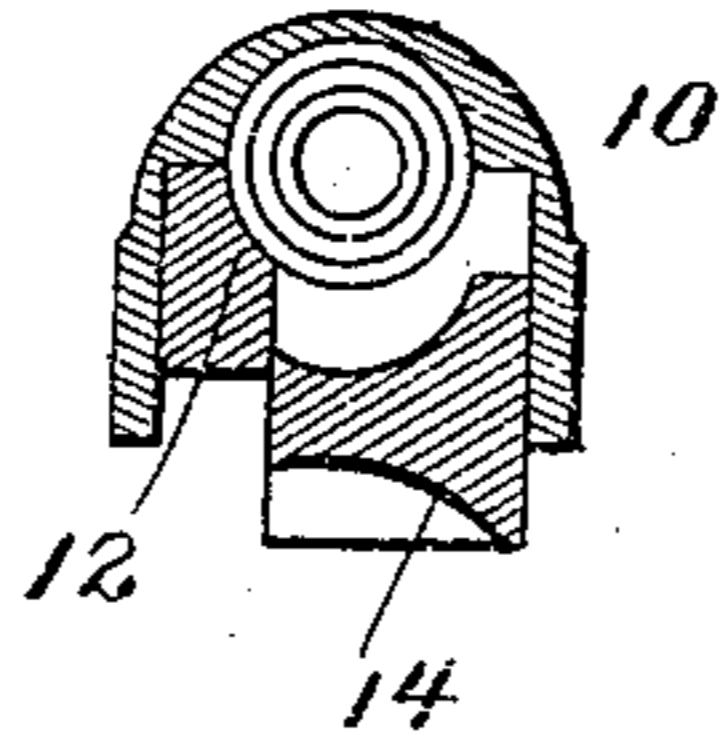


Fig. 7

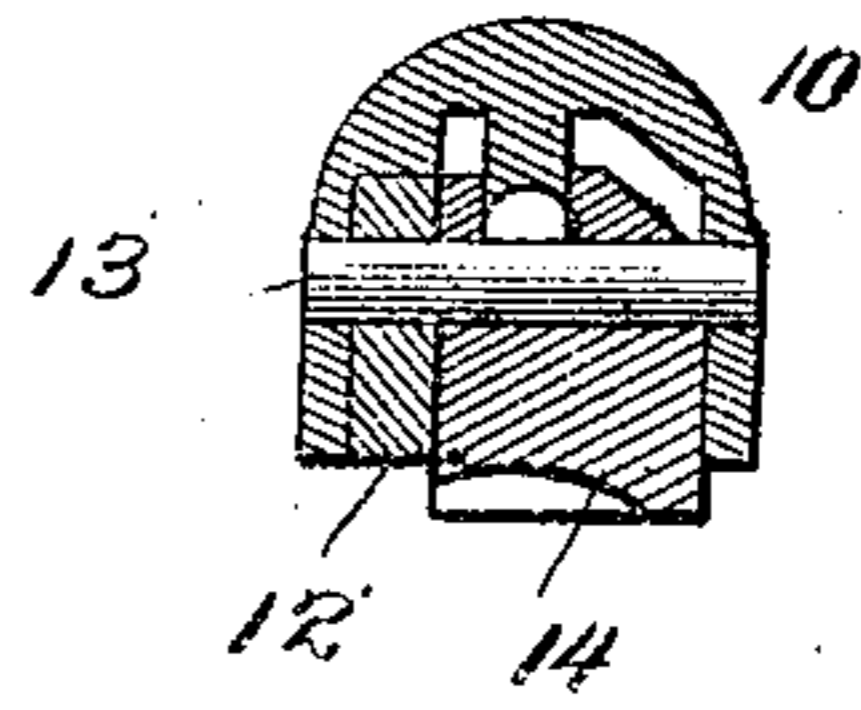


Fig. 4

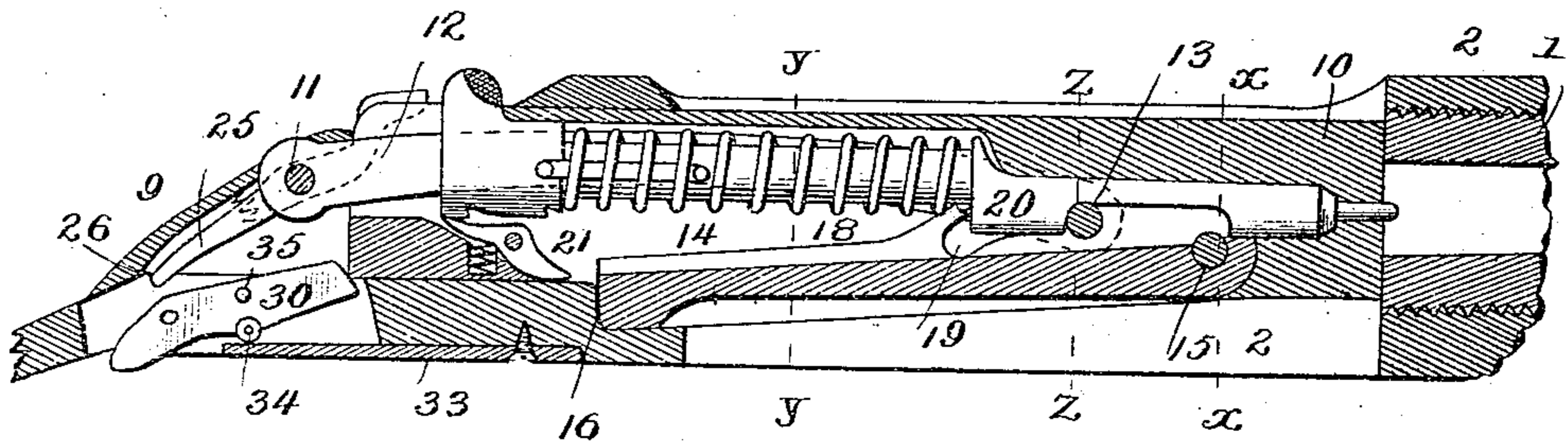


Fig. 8

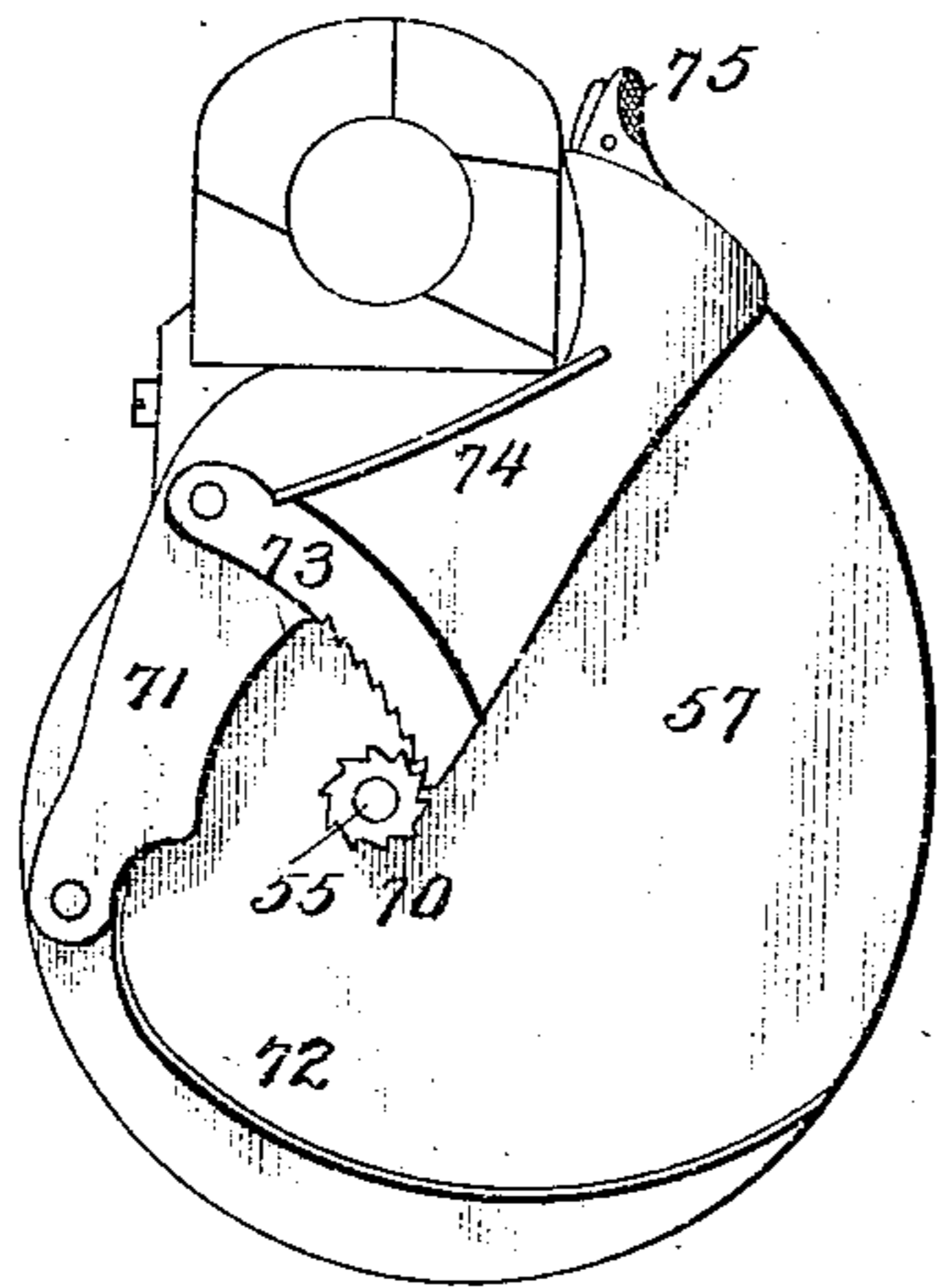


Fig. 9

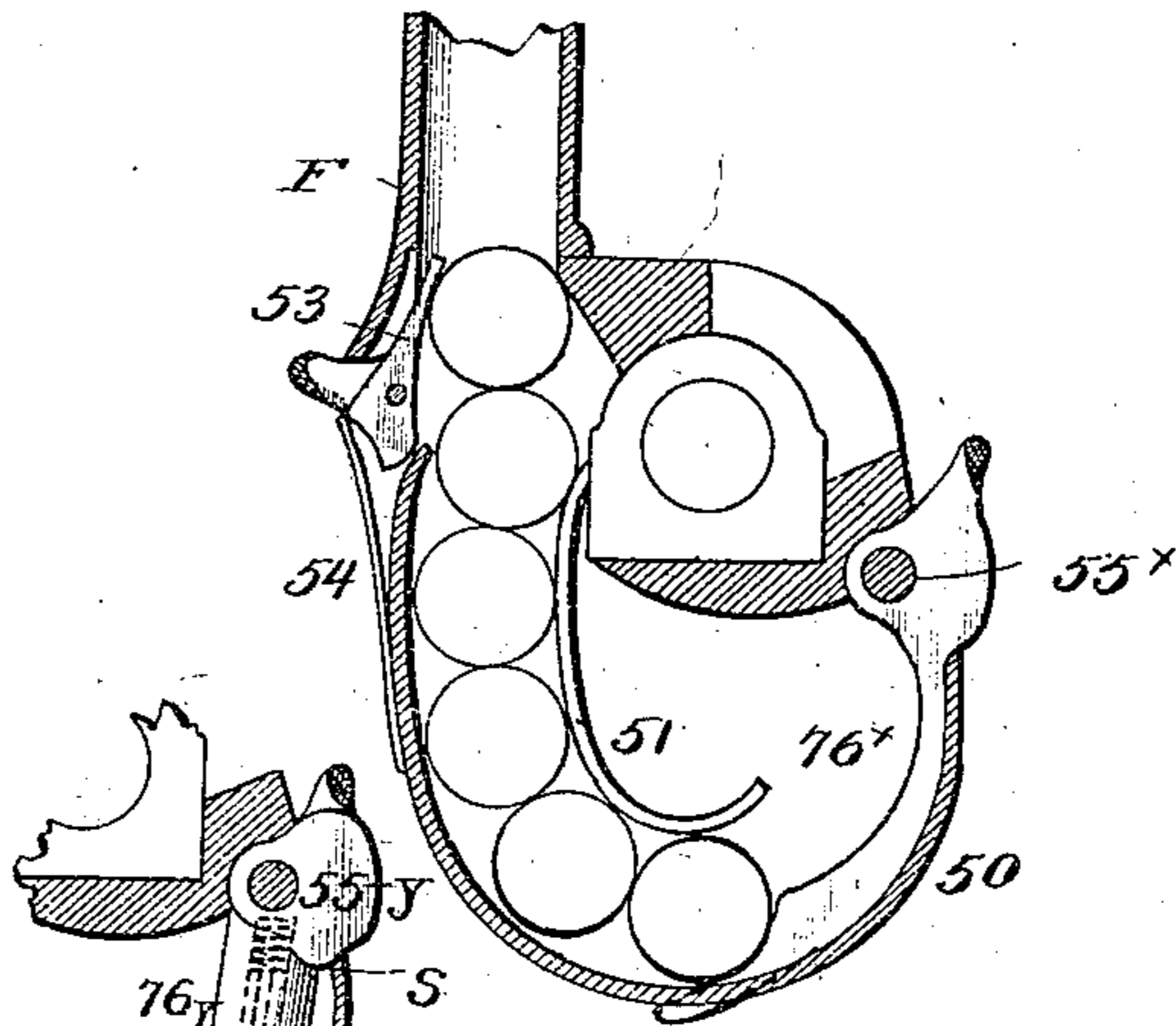
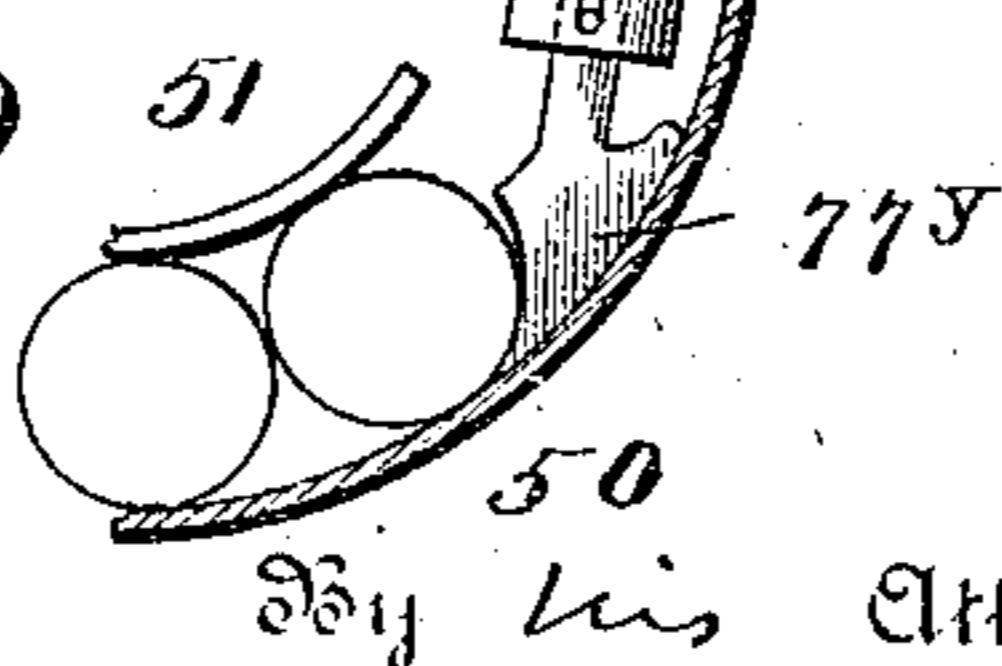


Fig. 10



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UNITED STATES PATENT OFFICE.

ANDREW BURGESS, OF BUFFALO, NEW YORK.

MAGAZINE-FIREARM.

SPECIFICATION forming part of Letters Patent No. 557,358, dated March 31, 1896.

Application filed March 3, 1892. Serial No. 423,599. (No model.)

To all whom it may concern:

Be it known that I, ANDREW BURGESS, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Magazine-Guns, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to magazine-guns.

The object of the invention is to produce a magazine-gun in which the cartridges may be arranged in a volute or spiral direction; also, to place the spring-follower under control of the operator, so that the spring may be operative or not, as is found desirable; also, to place the breech-locking mechanism of the gun under control of some part actuated by the shock of firing; also, to improve a magazine-gun in various particulars.

Figure 1 is a side elevation of the magazine and adjacent parts of my improved magazine-gun. Fig. 2 is a longitudinal central section of same. Fig. 3 is a cross-section through the magazine. Fig. 4 is a longitudinal section of the bolt and adjacent parts. Fig. 5 is a section of the bolt on line $x x$. Fig. 6 is a section on line $y y$; Fig. 7, a section on line $z z$. (The firing-pin is not shown in Figs. 5, 6, and 7.) Fig. 8 is a rear view of magazine, showing mechanism for winding magazine-spring by the opening of cover. Fig. 9 is a cross-section showing a modification of magazine-follower. Fig. 10 is a detail showing telescopic follower.

The numeral 1 indicates the gun-barrel, and 2 the fore stock.

3 denotes the frame, and 4 the rear stock or butt-stock. The frame 3 is of such construction that the bolt 10 has a longitudinal guideway therein. The bolt is reciprocated by means of a handle or sleeve 9, which reciprocates longitudinally on the small of the stock to open and close the breech. A cross-pin 11 connects the sleeve 9 to a draw-bar 12, which bar is connected to the bolt by a pin 13, which pin is rigidly connected to the draw-bar 12, but moves in a longitudinal slot in the bolt, or the pin may be short, so as not to directly engage the bolt. A locking-brace 14 is pivoted in the bolt, as by pin 15, and the rear end of said brace bears against an abutment, as 16, on the frame to hold the

bolt locked. The locking-brace 14, or a web or flange 18 thereon, has a curved or inclined slots 19, through which pin 13 extends.

Assuming the breech is in closed position, the backward movement of the handle 9 draws the pin 13 backward in the slot 19, and, by reason of the inclination of said slot, lifts the rear end of the locking-brace clear of the abutment. The further backward movement of the bar 12 and its pin draws the locking-brace backward, and the brace draws the breech-bolt along with it. The backward movement of the bar 12 also moves back the firing-pin 20, as will be described. A reverse movement of the handle 9 of course closes the breech, the hammer or firing-pin being held back by the sear 21, as usual. When the handle 9 is forward, it is held so by a pawl 25, (pivoted on the pin 11,) engaging a shoulder 26 in the frame. In the modification shown in Fig. 4 a tumbler 30 is pivoted in the frame just in the rear of the locked position of the bolt. The front end of the tumbler 30 is inclined, and in the position shown in Fig. 4 this inclined end is pressed against the rear of the bolt by a spring 33, which bears on a roller or projection 34 of the tumbler. When the shock of firing takes place, the blow, operating on the front end of the tumbler 30, throws this end down. As soon as the roller 34 has passed beyond a radial line from the pivot 35 the spring 33 will operate to throw up the rear end of the tumbler 30 against the lower end of the pawl 25, thereby raising said pawl out of engagement and unlocking the handle. The tumbler, held up by its spring, holds the pawl out of engagement, so that the handle may be moved back.

In closing the breech the sleeve or handle 9 engages the rear end of the tumbler 30 to throw it down past its center, when the spring 33 will throw the front end up against the bolt, as before.

In Fig. 2 a sliding piece 40 is shown as a substitute for the tumbler 30 described. The front end of this piece is held against the locking-brace by a spring 41, and the rear end is in front of the engaging end of the pawl 25. In this construction the shock produced by firing is communicated through the locking-brace 14 to the piece 40, and this piece is thrown violently back, lifting the pawl 25.

If now the handle be not immediately drawn back, the piece will be again thrown forward by the spring 41 and the handle again locked. Suitable provision will of course be made for operating the dog 25 by hand.

It should be noted that I allow for no perceptible backward movement of the bolt, or other part which is actuated by the shock of firing, in order to move the unlocking device. I have found by experiment that a movable piece having close contact with the breech-piece or a connection thereof will be thrown back on firing by the shock from a locked breech-piece. This is due probably to the elasticity or to the vibration of the metal.

I have designated the parts 30 and 40 the one as a "tumbler," the other as a "piece," for lack of a better name. It is apparent that the part so called is simply an intermediate or actuator, and that it may be greatly varied in construction.

I desire to particularly distinguish the present construction, in which the unlocking is effected by an impulse through the breech or other piece while in its locked position, from other constructions wherein the impulse is given by some part which is held normally forward of the locked position and retires to that position under the shock of firing.

In the construction shown in Fig. 2 the pin 13 bears against a shoulder *a* on the firing-pin 20 and moves said pin back with the first backward movement of the handle while unlocking the brace 14. As the final backward movement of the pin 20, when the spring *b* is nearly compressed, requires considerable pressure, I arrange to relieve this pressure, which is augmented by the force required to unlock the brace.

A pin 45 is shown projecting from the firing-pin at one side of the rear end. A two-armed lever 46 is fulcrumed in the bolt near its rear end, and one arm of this lever rides along an incline 47 (dotted lines) in the frame as the bolt moves backward and forward.

In the backward movement of the firing-pin the projection 45 will ride over the upper arm of the lever 46. When the lever 46 moves back, its upper arm will be just in front of the projection 45, and as the lower arm of the lever rides up the incline to the rear it thereby turns said lever so that the upper arm will give a backward pressure to the pin 45 and firing-pin and move back notch *c* in the pin to pass over the end of the sear *d*, which sear is hung in the bolt and is engaged by the firing-pin and by connection from the trigger *e* in the usual manner.

The magazine is of a character to contain the cartridges side by side, and has a spring-follower to press the cartridge toward the receiver. By preference the magazine is a volute spiral, as shown in Fig. 3. The outer wall 50 of the magazine is just far enough from the inner wall 51 to contain the cartridges side by side without permitting them to pass each other. The walls of the maga-

zine are curved, preferably in a volute spiral, so that the column of cartridges lies nearly in a scroll form.

The inner wall 51 of the magazine is cut away, leaving a passage 52, through which the stem of the follower may project.

It is not very material at which side of the bolt the magazine opens into the receiver, but in the illustrations this opening is on the right-hand side of the gun.

A cover 53 is shown at the mouth of the magazine, which cover is held closed by the spring 54, said cover when closed serving to guide the cartridges from the magazine into the receiver. The cover 53 may be swung back, as shown in Fig. 9, when cartridges may be fed into the magazine from a suitable feed-case, as indicated at F.

The volute magazine may taper from rear to front when cartridges with flanges are used. Through or near the longitudinal center of the volute magazine a shaft 55 passes. This shaft has suitable bearings in the front wall 56 and the rear wall 57 of the magazine. A spiral spring 58 has one end connected to the shaft 55, or to a collar 59 rigid with said shaft, and the other end of the spring is fixed to the frame. A milled head 60 is firmly attached to the shaft 55, and by turning said head the shaft may be turned and the spring placed under tension.

The shaft 55 has teeth or notches 61, into which a pawl 62 may engage. The weak spring 63 throws this pawl normally out of engagement with the teeth or notches 61, but when the pawl is pressed into engagement with the teeth or notches 61 it will hold the shaft 55 against rotation. When it is desired to release the shaft 55, so that it may be under control of the spring 58, the pawl 62 is thrown out of engagement with the teeth or notches, as by pressure on the lower end of said pawl, and the spring 63 will hold it out of engagement.

The shaft 55 has at its rear end a ratchet-wheel 70. A lever 71, pivoted to the rear wall of the magazine, is held up by the spring 72. A rack-bar 73 is pivoted to the lever 71 and held against the ratchet-wheel 70 by a spring 74, connected to the lever 71. The teeth of the rack-bar 73 and wheel 70 are so beveled rearward, as shown, that the bar 73 slides over the teeth of the wheel in moving back without turning said wheel 70, the elasticity of the spring 74 allowing the rack-bar to yield for this purpose.

A thumb-piece 75 on the lever 71 enables the operator to swing said lever, thus rotating the shaft 55 through the engagement of the rack and pinion or ratchet-wheel. Thus the shaft may be rotated and its spring placed under tension by manipulating the wheel 60, or by operating the lever 71. The spring 58 may also be placed under tension by pressing cartridges into the mouth of the magazine against the pressure of the follower.

The shaft 55 has a rigid arm 76 extending

therefrom. A pusher-bar 77 is pivoted to this arm, and by preference a push-plate 78 is loosely pivoted to this pusher-bar, (see Figs. 2 and 3,) so that the plate is free to rock on its pivot 79 and maintain a position parallel with the cartridge against which it bears.

The arm 76 and bar 77 form an extension-lever with an elbow-joint. The outer end of this lever and the plate 78 will travel in the volute magazine, the plate 78 following the spiral as it turns out or in.

To load the magazine in the easiest way, the follower-plate 78 is moved to the position shown in Fig. 3, (by turning the button 60, or by operating the lever 71,) and the shaft 55 then fastened by the pawl 62. Cartridges may then be pressed into the mouth of the magazine, either singly or in column. Owing to the curved form of the magazine the cartridges must maintain a position nearly parallel with the shaft 55, as the curved walls will not permit a cartridge to turn end over end. The magazine may thus be wholly filled, yet the follower will not press the cartridges toward the magazine unless the pawl or detent 62 be released. Thus with a full magazine the gun may be used as a single-loader by feeding in new cartridges one at a time over the top cartridge in the magazine.

When the detent 62 is released, the spring 58 tends to rotate shaft 55 and presses the upper cartridge or the edge thereof into the receiver whenever the bolt 10 is drawn back far enough to permit this cartridge to enter the receiver. The first cartridge is prevented from passing right through the receiver by the walls thereof, as is usual in magazine-guns. The extractor and ejector may be of any usual construction.

The follower-plate 78 will move along in the volute passage, approaching toward or receding from the shaft 55, according to the position of the cartridges in the magazine. The teeth or notches 61 may be numbered, or the button 60 may have an index, showing by its position the number of cartridges in the magazine, and in moving back the follower the pawl 62 may be made to stop the shaft 55 in any desirable position, so that the magazine may receive any desirable number of cartridges less than a full magazine charge.

In Fig. 9 the shaft 55^x is shown at one side of the magazine, and the magazine is stopped short of a complete turn. In such case the shaft 55^x (which is turned by a spring, as has been described for the shaft 55) may press forward the cartridges by an arm 76^x, which follows the cartridges. The continuation or outer end of said arm may pass through a slot or groove in the outer as well as the inner wall of the magazine.

In Fig. 10 the shaft 55^y, rotatively moved by a spring, has an arm 76^y with a socket, into which the arm 77^y extends, and from which said arm is projected by a spring *s* in the socket. The telescopic arm thus con-

structed is self-adjusting as to radial length, like the arm or follower-lever of Fig. 3.

The extension 71 of the lever 75 may be integral therewith and from the loading-gate, as in Fig. 1, and in such case will ride back under the spring 54 when the gate is opened.

As will readily appear to the ingenious mechanic, modified connections may be made from the loading-gate to the follower-shaft, whereby the spring on the latter may be wound up by opening the loading-gate.

I deem it of advantage to have the follower-shaft wind by direct finger engagement, as by the milled head 60, and by lever action, as the spring may be partly wound by hand, and when partly under tension the lever may be used; but of course either device for winding the spring may be used without the other.

Numerous changes may be made without departing from the spirit of my invention as claimed.

What I claim is—

1. In a firearm, the reciprocating breech-piece, the handle connected thereto and serving to open and close the same, a handle-locking catch, and a tumbler actuated by the shock of recoil through the breech-piece (without movement of said breech-piece) to unlock the handle-catch, substantially as described.

2. In a breech-loading firearm, the breech-bolt and means for locking it, the operating-handle connected to said bolt and having a retaining-catch, and a piece in contact with the rigidly-locked bolt and directly actuated through the bolt to unlock said retaining-catch by the shock of firing, all combined substantially as described.

3. In a breech-loading gun, the breech-bolt, the handle connected thereto, a pawl engaging said handle to lock the same in closed position, and a tumbler bearing against some part of the bolt when said part is against its abutment and movable by the shock of recoil to disengage the pawl and unlock the handle, in combination substantially as described.

4. In a bolt-gun, the bolt, the two-armed lever pivoted therein, the firing-pin having longitudinal movement in the bolt and having a projection in position to ride over to be engaged by one of the lever-arms as described, and the incline in the frame with which the other arm of the lever engages, all combined substantially as described.

5. In a breech-loading gun, the breech-bolt and firing-pin, a handle operating said bolt and having connection to the firing-pin by which the same is partially retracted, and a two-armed lever pivoted in the bolt and engaging the firing-pin and an incline on the frame to give the final cocking movement to the firing-pin, all combined substantially as described.

6. In a magazine-gun, the volute spiral magazine having a slotted wall, the shaft extending in the direction of the length of said magazine and an extensible follower con-

connected to said shaft, and the pusher-bar constituting the face of the follower pivoted to said arm, substantially as described.

7. In a magazine-gun, the curved magazine, the shaft, extending lengthwise of the magazine and having a follower extending into the magazine, and a finger-piece extending outside the frame, and having operative engagement with the shaft, so that the spring may be placed under tension by operating the finger-piece, in any position of the magazine, substantially as described.

8. In a magazine-gun, the curved magazine

and follower-shaft in the direction of the length thereof, the coil-spring on said shaft and means for winding the same, a series of notches in the shaft and a retaining-pawl in position to engage said notches, all in combination.

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

ANDREW BURGESS.

Witnesses:

JOSEPH ROY,

W. A. BARTLETT.