(No Model.)

4 Sheets—Sheet 1.

A. W. SAVAGE.

MAGAZINE GUN.

No. 502,018.

Patented July 25, 1893.

Fig. 1.

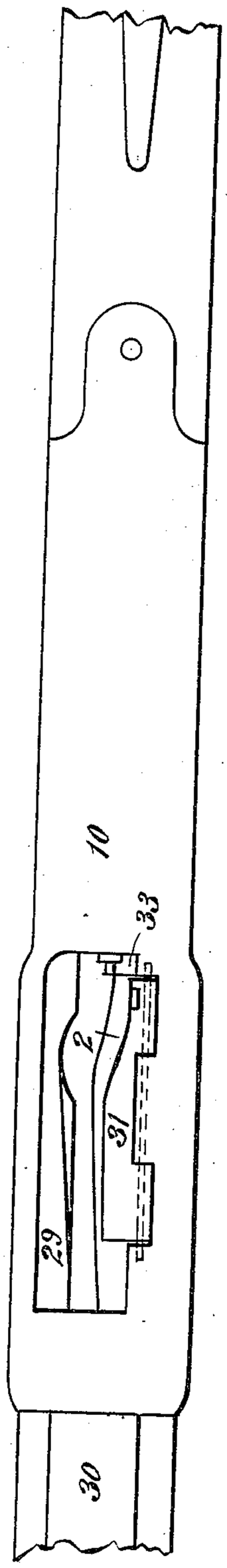


Fig. 2.

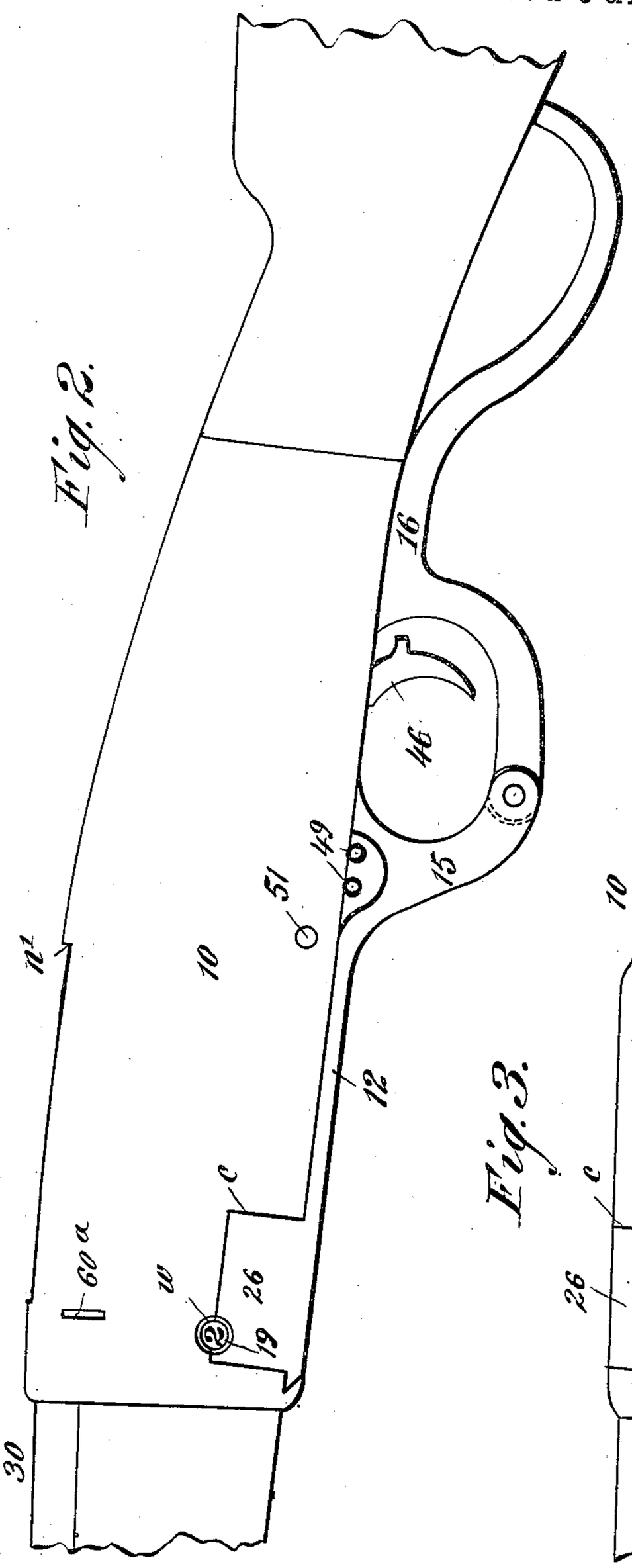
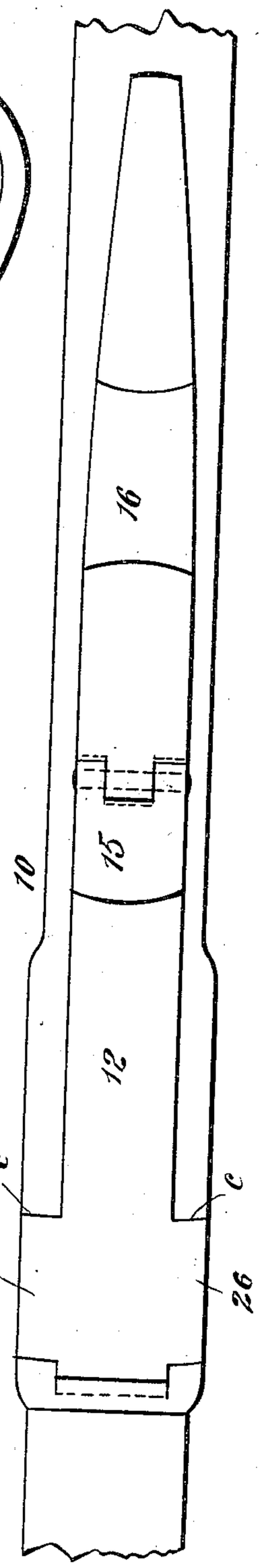


Fig. 3.



WITNESSES:

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Fig. 4.

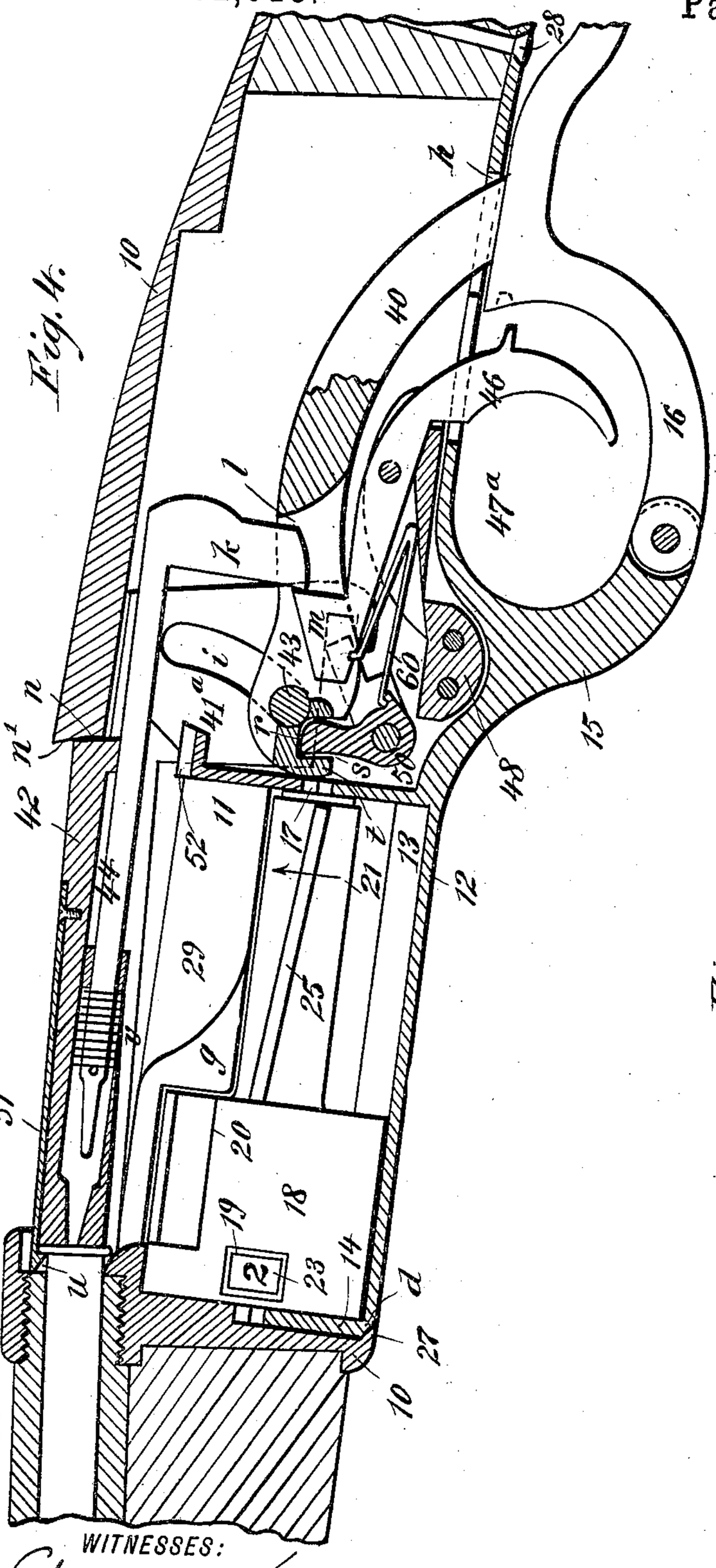
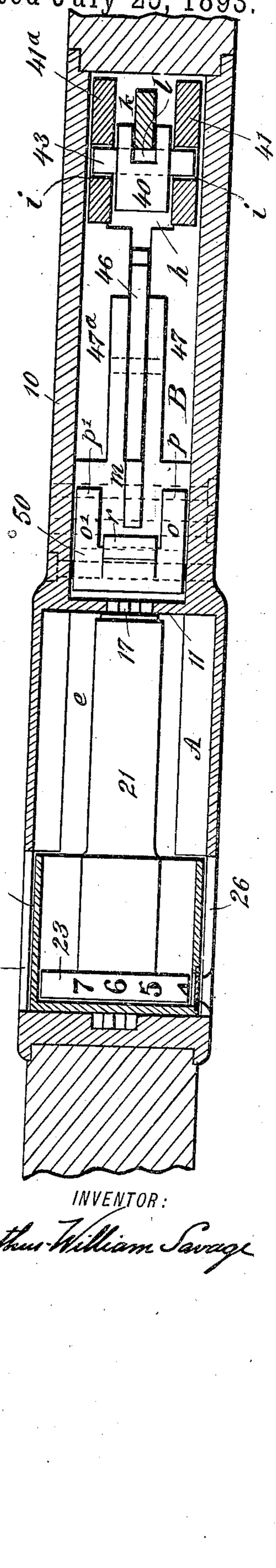


Fig. 5.



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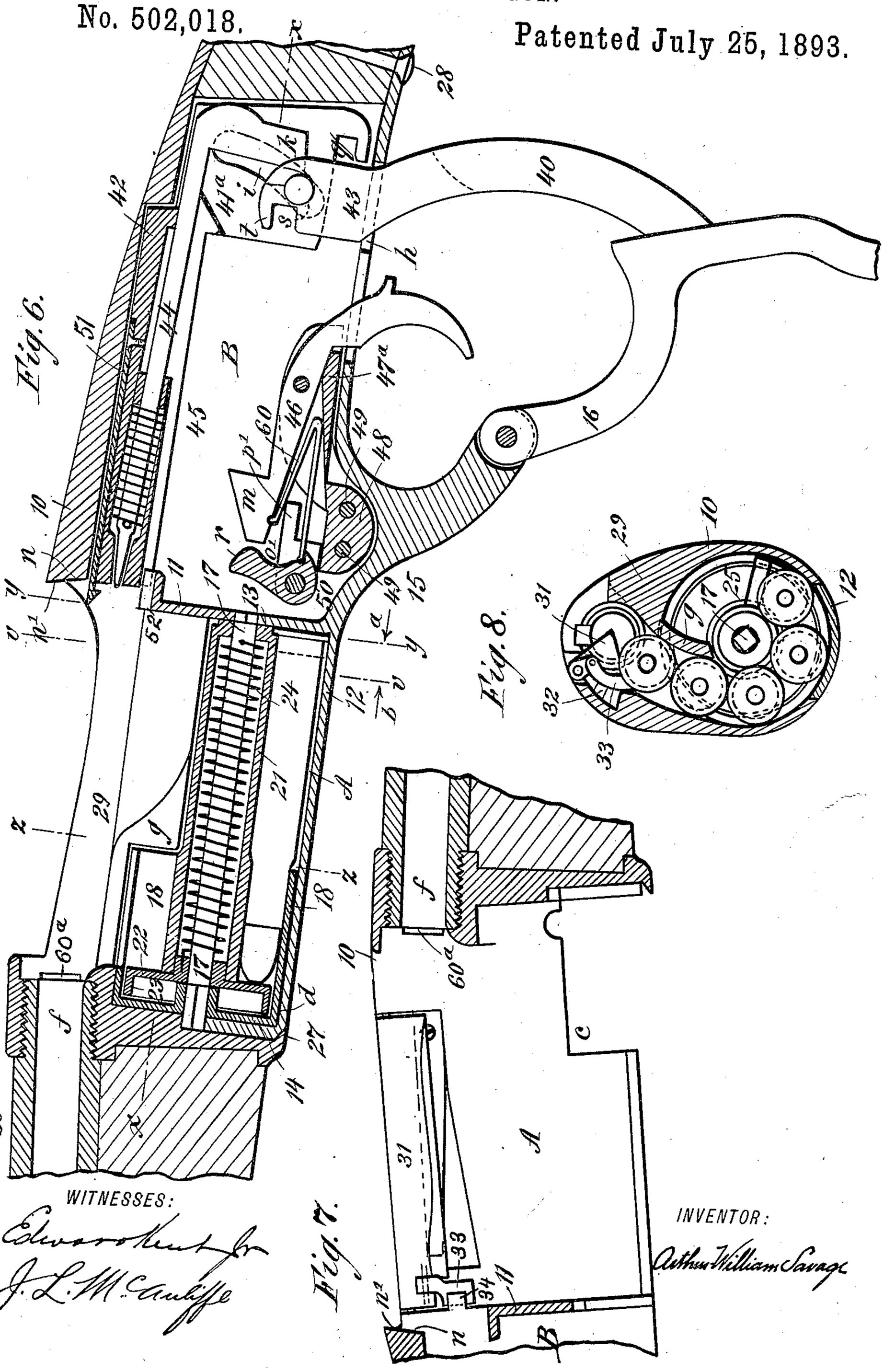

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(No Model.)

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Fig. 11.

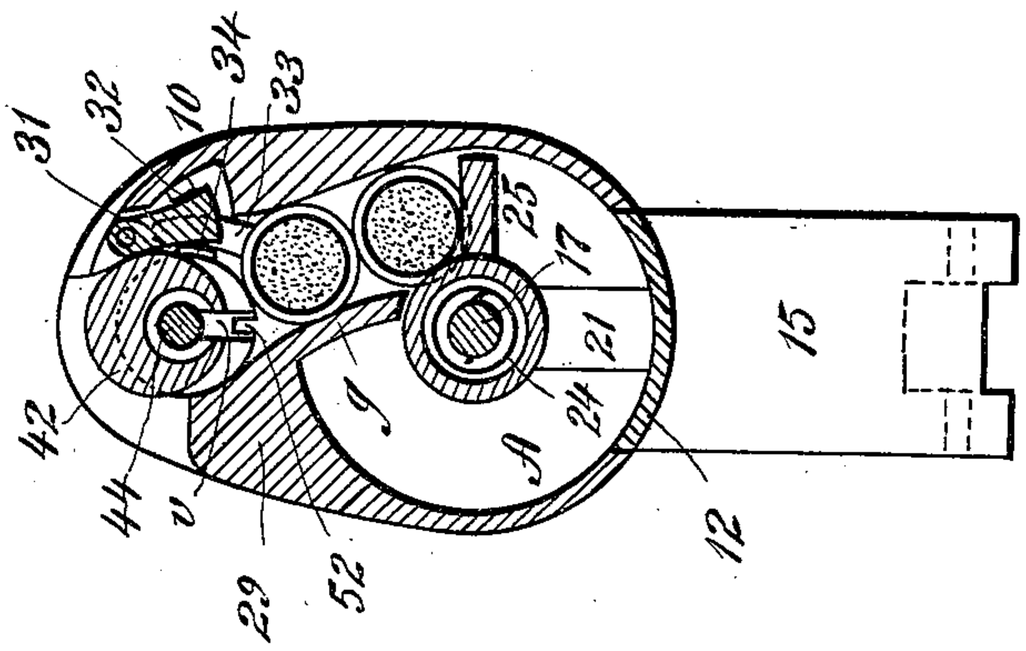


Fig. 10.

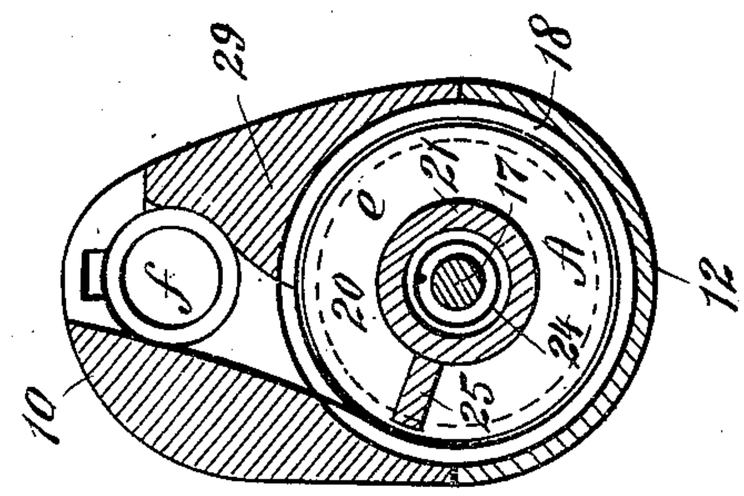
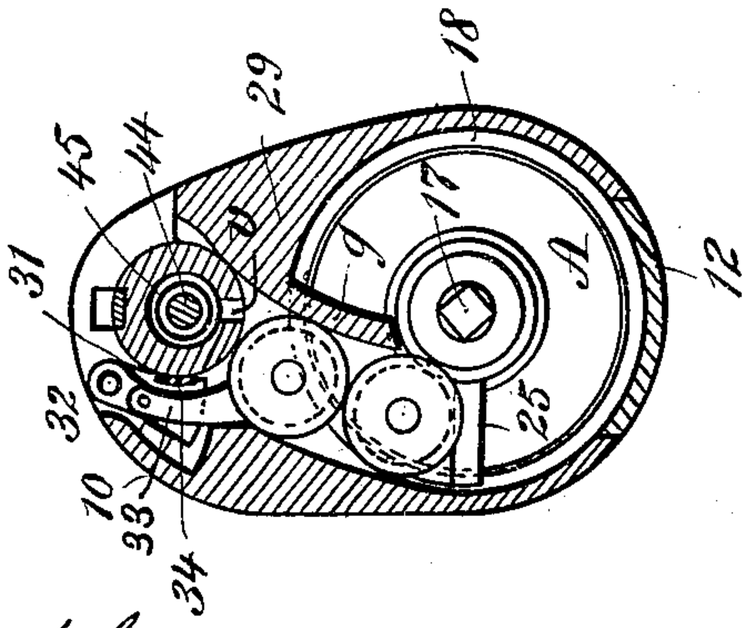


Fig. 9.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

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MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 502,018, dated July 25, 1893.

Application filed April 10, 1889. Renewed February 23, 1892. Serial No. 422,512. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR WILLIAM SAVAGE, a subject of the Queen of Great Britain, residing in Bay Ridge, in the county of Kings and State of New York, have invented a new and Improved Magazine-Gun, of which the following is a full, clear, and exact description.

My invention relates to that class of magazine guns in which the magazine is located just to the rear of the barrel, the main objects of the invention being to facilitate the firing of the gun from the shoulder, to prevent the escape of gas to the rear, to secure a positive action of all parts, to provide for the safe storage of the cartridges, and finally to so arrange the parts that the arm may be used as a single loader or a magazine gun without adjustment.

To the ends above named the invention consists of the constructions, arrangements and combinations of elements to be hereinafter described and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of a portion of an arm embodying my invention. Fig. 2 is a side view thereof. Fig. 3 is an inverted plan view. Fig. 4 is a central, longitudinal, sectional view of my improved magazine gun, the parts being shown as they appear when the breech is closed and the gun is ready to be fired. Fig. 5 is a sectional plan view, the parts being shown as they appear when the breech is open, the view being taken on line *x*—*x* of Fig. 6. Fig. 6 is a central sectional view of the gun, the parts being shown as they appear when the breech is open. Fig. 7 is a central, longitudinal sectional view of the frame, the central spindle and the parts connected thereto being removed. Fig. 8 is a cross sectional view taken on line *y*—*y* in Fig. 6, in the direction of the arrow *a*. Fig. 9 is a similar view, the parts, however, being shown as they appear after the breech bolt has been slightly advanced; two cartridges only being shown in the chamber. Fig. 10 is a cross sectional view on line *z*—*z* of Fig. 6; and Fig. 11 is a cross sectional view on line *v*—*v* of Fig. 6, the parts, however, being shown as they appear after a single cartridge has been placed in the cartridge chamber of the barrel, or after the bolt has been slightly advanced, the view being taken in the direction of the arrow *b*.

In the drawings, 10 represents the frame, which contains a forward compartment A, constituting a magazine chamber, and a rear compartment B in which the action is housed, the two compartments being separated by a partition 11. There is a longitudinal opening in the bottom of the frame, which opening is however, normally closed by a strap 12 formed with two upwardly-extending projections 13 and 14, and with a downwardly-extending arm 15 which constitutes a portion of the trigger guard, and serves as the support and fulcrum for the operating lever 16, said lever being formed to constitute the other portion of the trigger guard. The upwardly-extending projection 13 is apertured to receive the squared or irregularly formed rear end of a spindle 17, the connection being such that the spindle will be held from turning. The forward end of the spindle rests in a recess formed in the upper edge of the projection 14, said forward edge being shaped to receive and hold a projection on a cylindrical hood or cage 18, having a side opening 19 and an upper slot or opening 20.

Upon the spindle 17 there is mounted a sleeve 21 that is made integral with, or rigidly connected to a disk 22 formed with an annular flange 23, upon the peripheral face of which there appear as many numbers as there are cartridges in the magazine chamber when said chamber is fully charged, such numbers being arranged so that they may be brought successively into register with the side opening 19 of the hood or cage 18, as will be hereinafter explained. A spiral spring 24 is coiled about the spindle 17 within the sleeve 21, one end of the spring being connected to the spindle, and the other end to the sleeve in a manner such that the tendency of the spring is to carry the sleeve and the flanged disk 22 in the direction of the arrow shown in Fig. 4. The sleeve 22 carries a leaf or flange 25 which

xtends at an angle to the axis of the sleeve, s shown in Fig. 4.

In order that the parts above described as eing carried by the strap 12 may be placed ithin the chamber A after they have been djusted to place upon the strap projections, he frame is cut away at *c* on both sides, and he strap provided with side flanges 26 of roper form to close the openings *c*, the openngs being necessary in order that the hood or age 18 may be placed within the chamber A. he strap 12 may be held to place in any roper manner, but I prefer to form the frame 0 with a lip 27, and cut the strap away at *d*, nd thus provide for the support of the forard end of the strap, the rear end being eld by a screw 28 arranged as shown.

The right hand side of the frame 10 is ormed with a boss 29 which overhangs the nnular space *e* about the sleeve 21, the forard portion of this boss extending over the age or hood 18 to a point beneath but a little the right of the cartridge receiving chamer *f* of the barrel 30, while the rear portion f the boss extends downward in the form of flange to bear closely against the peripheral ice of the sleeve 21, such flange being shown *g*.

To the opposite or left hand side of the frame ere is hinged a leaf 31, which, when the eech is open is forced outward over the ace *e* by a spring 32. A tongue 33 is hinged the rear end of the leaf 31, said tongue beg guided by a projection 34 which extends rward from the partition 11.

As before stated, the lever 16 is pivotally pported on the arm 15 of the strap 12. This ver is provided with a segmental arm 40 hich extends upward within the chamber B, assing through an opening *h* formed in the rap 12. The end of the arm 40 rests between o plates 41 and 41ª which are rigidly conected to or made integral with the breech lt 42, said plates extending to the rear from e bolt, and being slotted at *i* to receive the ds of a pin 43 that is carried by the arm 40, e arrangement being such that as the lever thrown downward, the bolt will be drawn ckward, and when the lever is moved upard, the bolt will be forced forward, the slots ing necessary as the end of the arm 40 deribes an arc as the lever is thrown. The eech bolt 42 is chambered to receive the firg pin 44 and its spring 45, the spindle contuting the firing pin extending to the rear yond the breech bolt, there to carry a wnwardly-extending projection *k* which enes a slot *l* formed in the arm 40.

The trigger is pivotally mounted between o arms 47 and 47ª which extend to the rear om a block 48 that is held to place by pins screws 49 within a recess formed in the upr face of the strap 12; or the trigger could supported by flanges made integral with strap. The sear *m* engages the projection f the firing pin 44 when the bolt 42 is forced ward by the action of the operating lever, the sear holding the firing pin against the tension of its spring until the trigger is pulled to release the pin. The bolt 42 extends above the plates 41 and 41ª, the end of the bolt proper forming a shoulder, which, when the parts are in firing position, abuts against a shoulder *n* formed upon the frame 10 above and just to the rear of the boss 29, and in order that the bolt may be so brought to bear upon the shoulder *n*, I provide a three-armed dog 50 that is pivotally mounted on a pin 51 in advance of the trigger 46, the arms *o* and *o'* of the dog 50 being provided with rearwardly-extending fingers or projections *p* and *p'*, which when the bolt is forced forward by the upward movement of the lever enter recesses *q* formed in the plates 41 and 41ª. Just as the projections *p* and *p'* enter the recesses *q*, the dog arm *r* will enter a recess *s* formed in the arm 40, and the lower edge of the forward end of the bolt 42 will strike the frame 10 just below the cartridge chamber *f*, the point upon which said lower edge of the forward end of the bolt bears serving as a fulcrum, all forward movement of the bolt being prevented, but the rear end of the bolt being free to move upward in advance of the shoulder *n*. After the lower edge of the forward end of the bolt has struck the fulcrum point, any farther upward movement of the lever 16 will rock the dog 50 in the direction of the arrow shown in Fig. 6, so that the projections *p* and *p'* of the arms *o*, *o'* will bear against the lower edges of the plates 41 and 41ª, and the rear end of the bolt will consequently be moved upward in advance of the shoulder *n'*, to the position in which the parts are shown in Fig. 4, and having been so moved, the bolt will be locked to place. A reverse movement of the lever 16 brings a hook-like projection *t* formed on the arm 40 beyond its recess *s* into engagement with the dog arm *r*, and the dog will consequently be rocked, so that at the initial movement of the lever, the rear end of the bolt will be carried downward, this downward movement being continued until the rear end of the bolt is below the shoulder *n*. By arranging the parts as set forth I secure a very powerful leverage for my extractor, such extractor consisting of a spring 51 that is connected to the bolt 42, the forward end of the spring being formed with a hook *u* adapted to engage the cartridge flange.

In order that the bolt 42 may be properly guided, I form said bolt with a longitudinal slot *v* in which there rides a rib 52 that extends upward from the partition 11, and the forward edge of this rib serves as an ejector, acting to tilt the forward edge of the cartridge shell upward, and freeing such shell from engagement with the hook *u*.

In loading the magazine, the cartridge rims are forced downward beneath the tongue 33 and then beneath the leaf 31, the first cartridge introduced resting on the flange or leaf 25, which said flange is forced in the direction indicated in Fig. 8 against the tension of the

spring 24; then as each successive cartridge is introduced, the leaf will be advanced step by step until it finally abuts against the flange *g*. As the flange 25 moves in the manner just set forth, the sleeve 21 and with it the disk 22 and its annular flange 23 will be moved to a position such that a number corresponding to the number of cartridges within the chamber *f* will be brought into register with the aperture 19 formed as before set forth in the cage or hood 18, and as the said aperture registers with an aperture *w* produced by semicircular recesses formed in the frame and strap, I obtain an accurate indicator by means of which I am able by a glance to ascertain how many cartridges I have in the magazine. After the magazine has been charged as above set forth, the rim of the upper cartridge upon the left will bear against the lower end of the tongue 33, the upper edge of the cartridge rim extending into the path of the bolt 42 when said bolt is in the position in which it is shown in Fig. 6, so that when the bolt is forced forward it will strike the cartridge and press it forward and into the chamber *f*, the leaf 31 being forced inward as the bolt advances, said leaf being formed with an inclined face 2 against which the cartridge rim bears after it passes from engagement with the tongue 33, and consequently the spring 24 is free to act to throw the sleeve 21 and with it the leaf 25 forward, thus raising the cartridge in advance of the bolt until its flange is engaged by the extractor hook *u*, and a second cartridge is brought to bear upon the tongue 33.

When the cartridge is inserted by hand, that is, when the gun is used as a single loader, the point of the bullet is inserted in the chamber *f* and the cartridge dropped against the leaf 31, which will move slightly toward the left and carry the tongue 33 downward, and as the tongue so moves downward the uppermost cartridge in the magazine will be carried to a point beneath the line of travel of the bolt 42, which bolt in advancing will carry the cartridge placed by hand against the leaf 31 forward and into the chamber *f*.

In order that the sear may be held in engagement with the firing pin projection, I provide a spring 60, which also bears upon the dog 50, acting to return said dog to the position in which it is shown in Fig. 6 when the breech is open.

I provide the usual gas vents, such as those shown at 60^a, and I prefer to continue the shoulder *n* upward, as shown, and thus form a gas check *n'*.

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

1. The combination with the frame and reciprocating breech piece, of a lever having its fulcrum connected to the frame, and an arm projecting from said lever, from a point at the rear of the fulcrum, and extending upward and forward into engagement with the breech piece, substantially as described.

2. In combination with the frame and breech piece, the lever pivoted to the frame and having an arm concentric with the pivot projecting through a slot in the frame and connected to the breech piece, to operate the same, substantially as described.

3. The combination with a sliding breech bolt of a lever mounted to swing beneath the frame and formed to constitute a portion of the trigger guard and with a segmental arm that extends forward from a point to the rear of the trigger guard portion of the lever to a point in advance of the pivoted support of the lever such support constituting a portion of the trigger guard and connections between the arm and the bolt substantially as described.

4. The frame the reciprocating bolt, having a plate extending to the rear thereof and provided with a cam bearing, and the lever pivoted in the frame and having a projection engaging said cam bearing to actuate the bolt, in combination substantially as described.

5. The combination with a sliding breech bolt provided with plates which extend to the rear and downward from the bolt and are formed with segmental slots, of a lever, an arm which is rigidly connected to the lever and extends between the bolt plates, the arm being segmental and substantially concentric with the axis of the lever support, and a pin carried by the arm and riding in the plate slots substantially as described.

6. The combination with a sliding breech bolt having a forward fulcrum point, of a lever mounted to swing beneath the frame, an arm connected to the lever, connections between the arm and the bolt, and a rocking dog arranged to be operated upon by the lever arm and to operate upon the bolt to raise and lower the same, substantially as described.

7. The combination with a breech bolt provided with slotted and recessed plates that extend downward from the rear end of the bolt, of a lever mounted to swing beneath the frame, an arm rigidly connected to the lever and extending between the bolt plates, a pin carried by the arm, said pin entering the plate slots, and a rocking dog which is engaged by the bolt plates and by the lever arm and is located to the rear of the magazine chamber substantially as described.

8. The frame and reciprocating bolt therein, the magazine opening at its side toward the bolt and having a follower therein, and a cartridge retainer at the mouth of said magazine having a cam face with which the bolt engages in its forward movement to press back the retainer, all combined substantially as described.

9. In a magazine firearm the combination with a frame formed with a magazine chamber of a spring actuated cartridge advancing

leaf or flange, located therein, a spring pressed retaining leaf and a tongue connected to said retaining leaf substantially as described.

10. In a gun, the frame having a magazine chamber consisting of curved walls around a central axis, a cartridge follower, a spring pressed retaining leaf at the mouth of the magazine having a cam face with which the bolt engages, and the reciprocating breech bolt, all in combination substantially as described.

11. In a breech loading firearm the combination with the breech block or bolt of an extractor carried thereby, and a fixed flange or rib constituting a combined guide and ejector, mounted beneath the bolt and riding in a slot formed therein substantially as described.

12. In a magazine firearm the combination with a frame formed with a magazine chamber of a spring actuated cartridge follower mounted to move about the axis of the magazine chamber and a number carrying flange mounted to move with the cartridge follower substantially as described.

13. In a magazine firearm, the combination with a frame formed with a magazine chamber adapted to receive a number of cartridges placed side by side, a means for advancing the cartidges about the axis of the magazine chamber, a cartridge retaining leaf, a breech bolt, a firing pin carried thereby, downwardly extending and slotted plates connected to the breech bolt, said plates having recesses, *q*, a dog having a projection *r* and projections which at times enter the recesses *q*, a lever, an arm connected thereto, and formed with a hook like projection which at times engages the dog projection and a trigger, and a spring arranged in connection therewith, substantially as described.

14. The frame, the breech bolt reciprocating therein and having a side projection with a cam face, the firing pin having also a projection with a cam face of different contour, and the operating lever having projections engaging said cam faces to retire the pin in advance of the retiring of the bolt, all combined substantially as described.

15. In a fire arm, a magazine having a curved wall and a spring-actuated cartridge-advancing core having a leaf with an inclined face in the direction of the muzzle, substantially as set forth.

16. In a fire arm, a magazine having a curved wall in cross-section and a partially-rotated spring-actuated cartridge advancing core having a flange with numerals on the edge or face of the flange, substantially as set forth.

17. In a fire arm a magazine within the frame, a partially rotating cartridge-advancing core having a portion provided with numerals on the periphery, and an opening in the wall of the magazine to expose the numerals, substantially as described.

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