

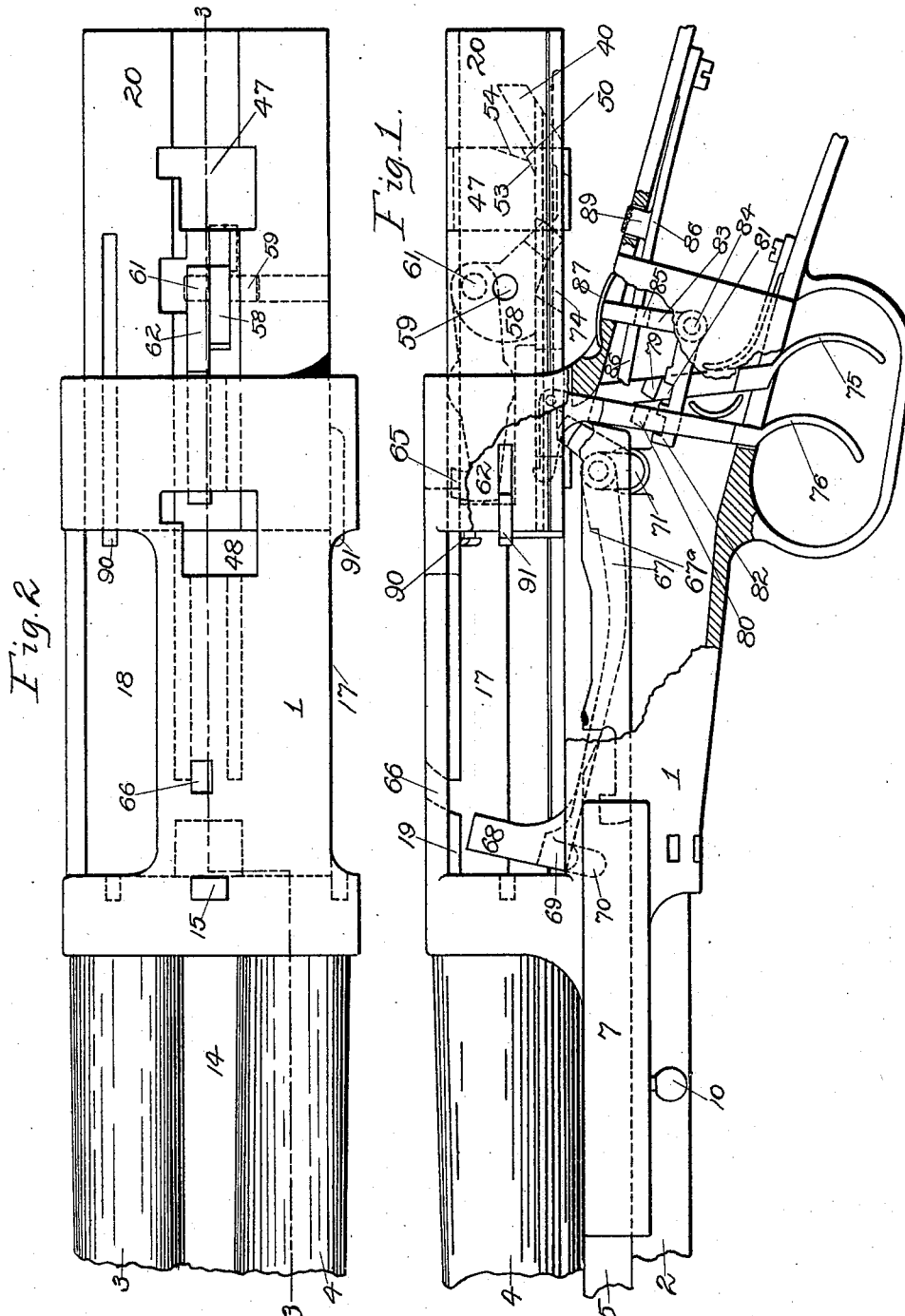
(No Model.)

10 Sheets—Sheet 1.

D. S. SEYMOUR.  
MAGAZINE FIREARM.

No. 576,744.

Patented Feb. 9, 1897.



Witnesses  
 W. H. Boniss.  
 J. Merritt.

Inventor:  
 D. S. Seymour.  
 by Albert C. Walker, Atty.



(No Model.)

10 Sheets—Sheet 3.

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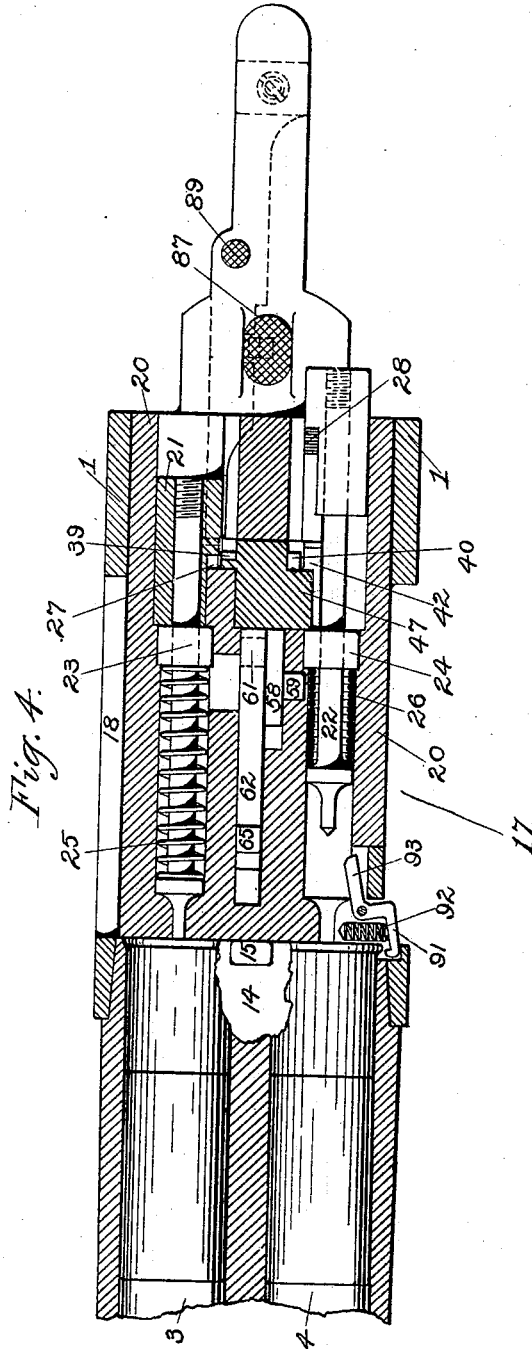


Fig. 4.

Witnesses:  
W. H. Boniss.  
J. S. Merritt.

Inventor:  
Dudley Seymour.  
By Albert W. Walker, Att'y.

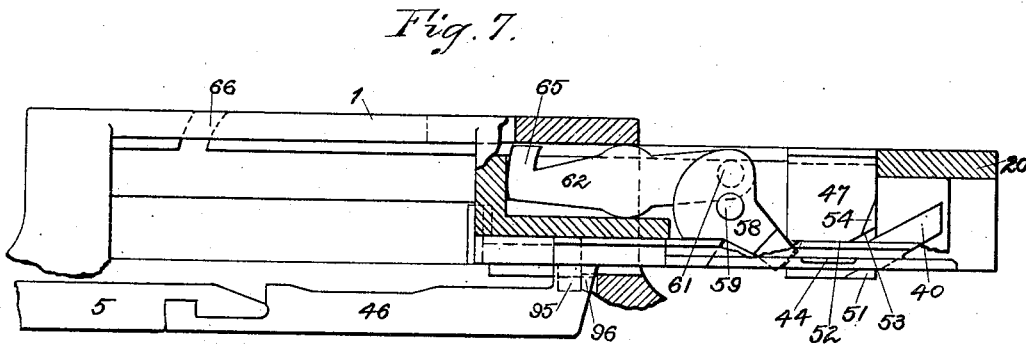
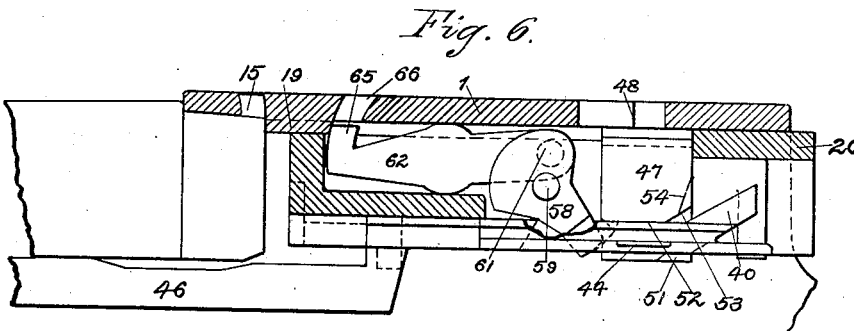
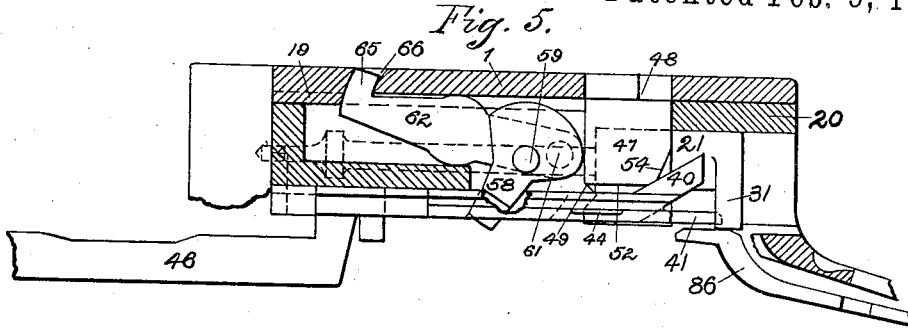
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Jos. Merritt.

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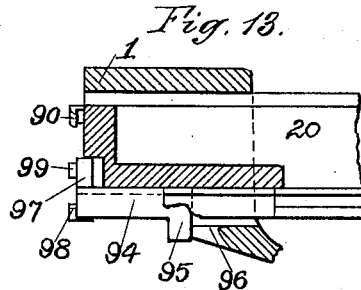
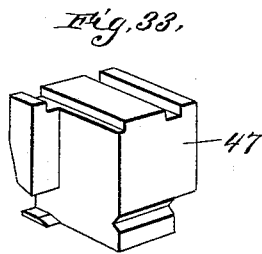
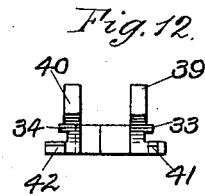
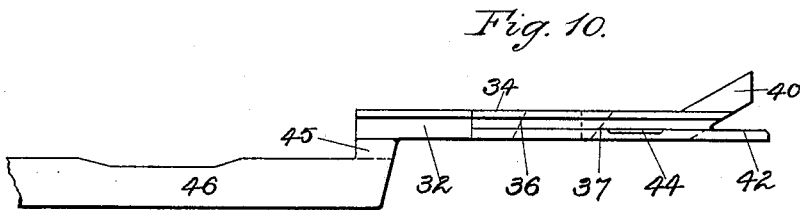
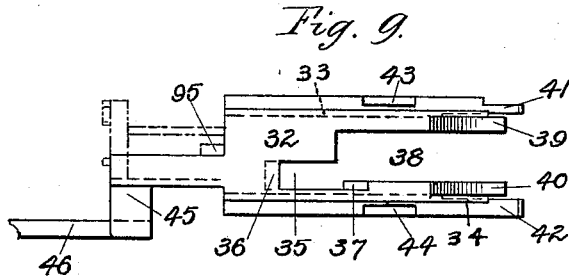
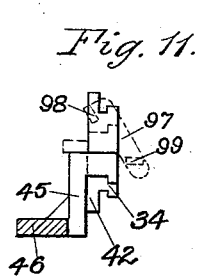
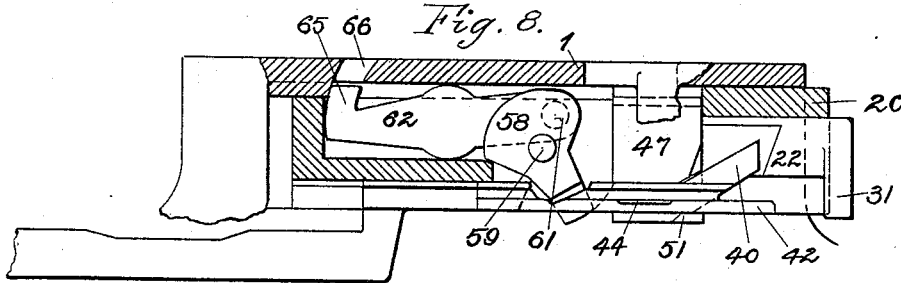
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Patented Feb. 9, 1897.



Witnesses:  
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(No Model.)

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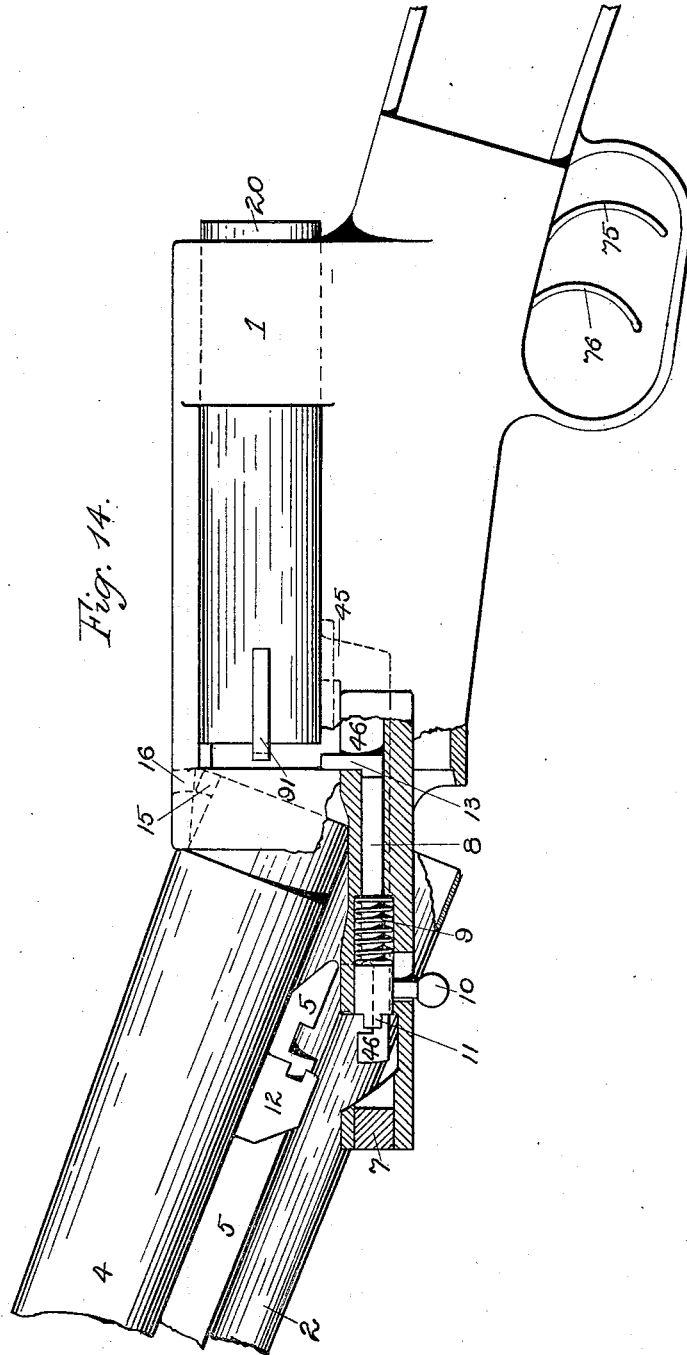


Fig. 14.

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D. S. SEYMOUR.  
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Fig. 15.

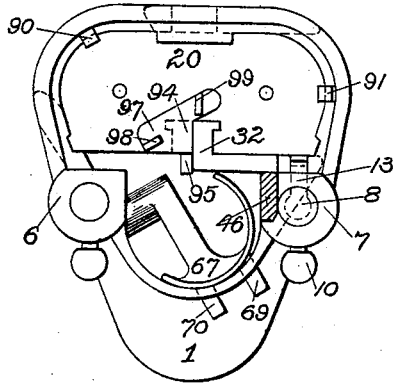


Fig. 16.

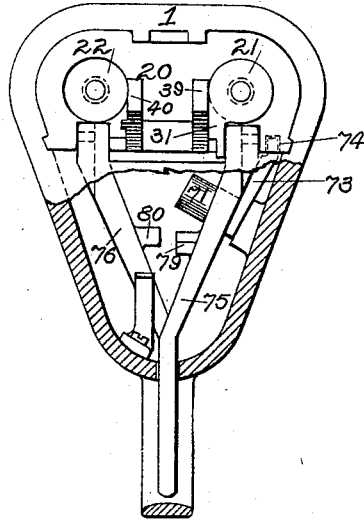


Fig. 17.

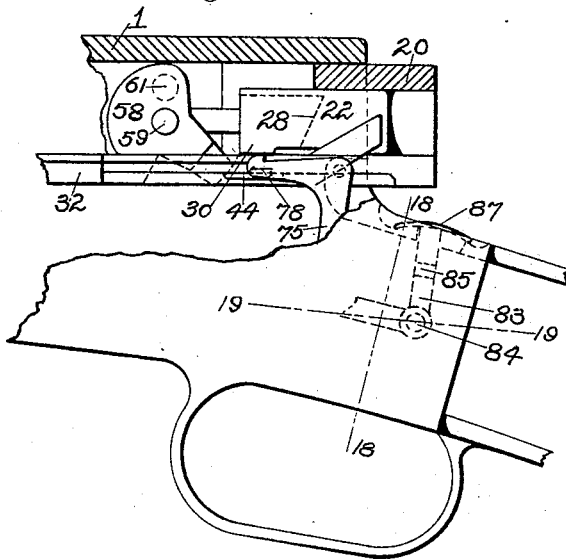
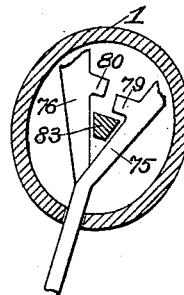


Fig. 18.



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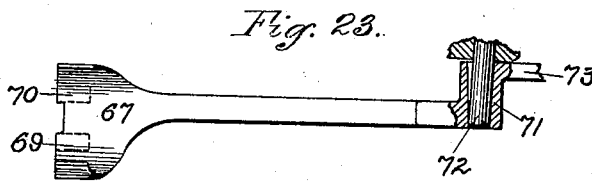
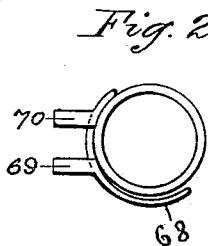
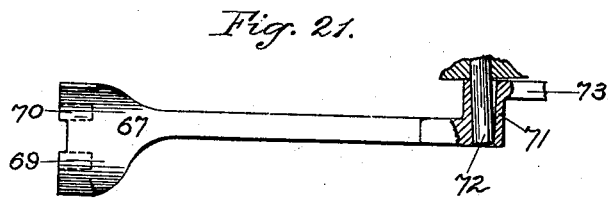
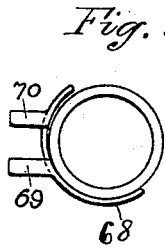
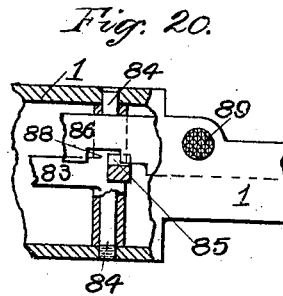
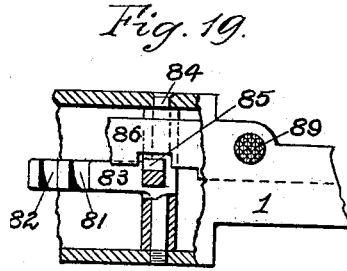
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Witnesses:  
W. H. Honiss.  
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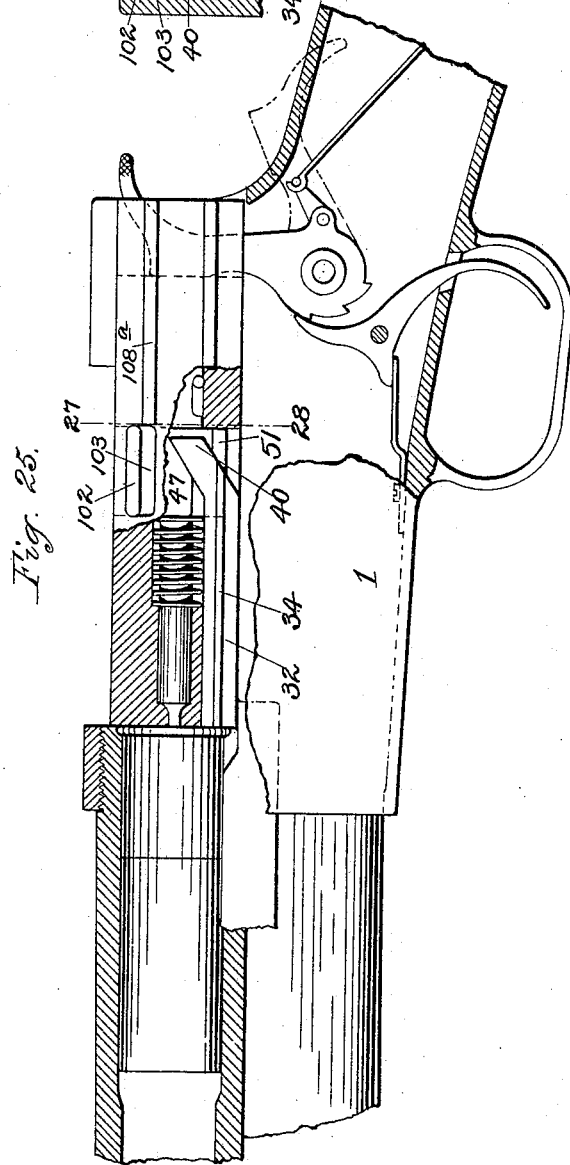
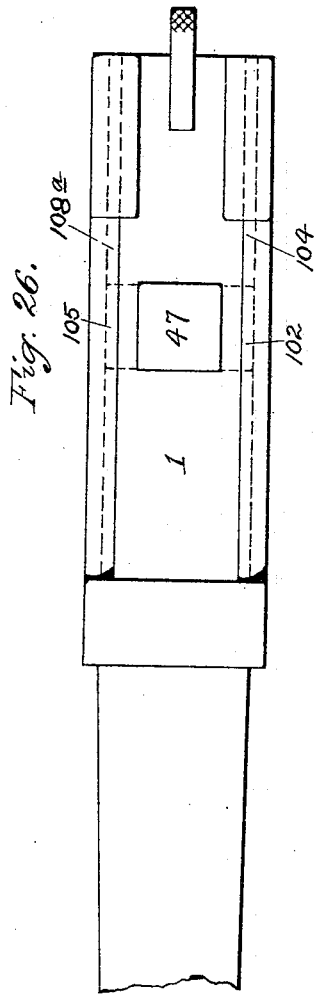
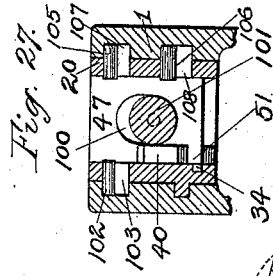
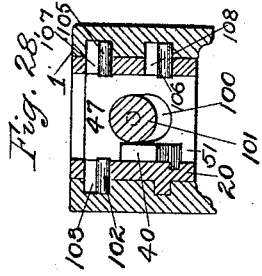
(No Model.)

10 Sheets—Sheet 9.

# D. S. SEYMOUR. MAGAZINE FIREARM.

No. 576,744.

Patented Feb. 9, 1897.



Witnesses:  
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(No Model.)

10 Sheets—Sheet 10.

D. S. SEYMOUR.  
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Fig. 31.

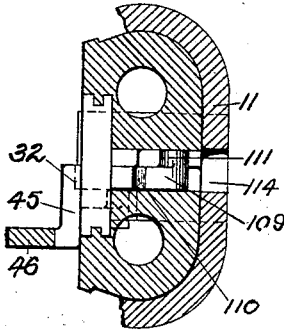


Fig. 30.

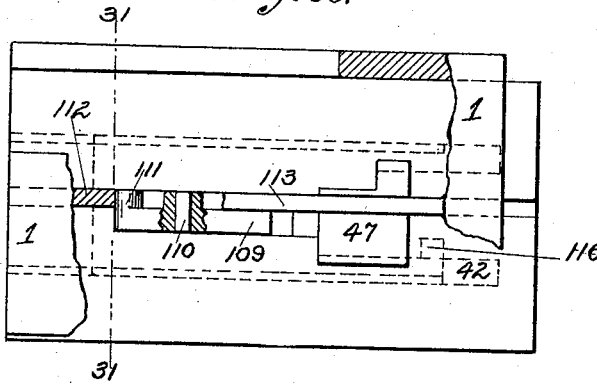


Fig. 29.

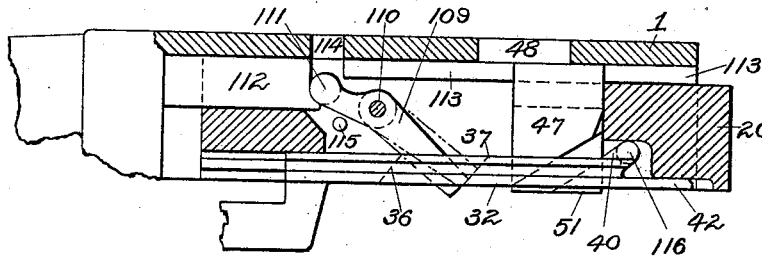
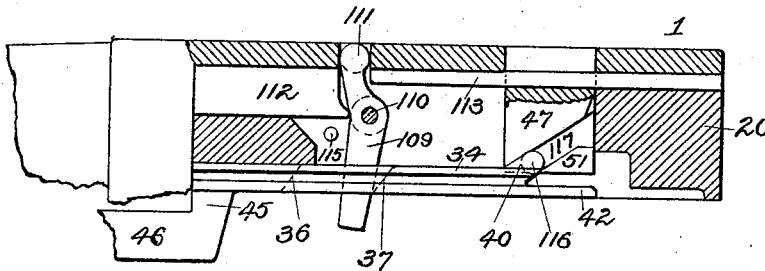


Fig. 32.



Witnesses:  
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Inventor:  
 D. S. Seymour,  
 by Albert E. Walker, Atty.

# UNITED STATES PATENT OFFICE.

DUDLEY S. SEYMOUR, OF HARTFORD, CONNECTICUT, ASSIGNOR OF ONE-HALF TO JOHN JOHNSTON, OF SAME PLACE.

## MAGAZINE-FIREARM.

SPECIFICATION forming part of Letters Patent No. 576,744, dated February 9, 1897.

Application filed January 7, 1896. Serial No. 574,628. (No model.)

*To all whom it may concern:*

Be it known that I, DUDLEY S. SEYMOUR, of Hartford, Connecticut, have invented new and useful Improvements in Firearms, of which the following description and claims constitute the specification, and which is illustrated by the accompanying ten sheets of drawings.

This invention is a double-barrel breech-loading firearm, which may have both barrels smooth-bored for shot or both barrels rifled, or one rifled and one smooth-bored on one stock and independently discharged by one lock, and may have a magazine connected therewith to supply one or both of the barrels with cartridges.

In the accompanying drawings only one magazine is shown, and is shown as supplying cartridges to one of the barrels, while the other barrel is loaded by hand, and the breech-block and its appurtenances and also the cartridge-carrier are shown as worked by a trombone-slide moving lengthwise of the barrels. The first eight sheets of the drawings show the preferred mechanism, while Sheets 9 and 10 are devoted to separate modifications of that preferred mechanism. The plan of this specification consists in first indicating the general character of all the figures of the drawings, and then describing in detail the preferred mechanism, and then explaining the mode of operation of that mechanism, and then describing how that mechanism is modified and its mode of operation varied where the separate modifications of Sheets 9 and 10 of the drawings are respectively employed.

Figure 1 is a side view, partly in section, of the preferred mechanism with the breech-block back. Fig. 2 is a plan and projection of Fig. 1. Fig. 3 is a central vertical longitudinal section taken on the line 3 3 of Fig. 2, except that it shows the breech-block forward. Fig. 4 is a horizontal section on the line 4 4 of Fig. 3, except that it shows the right-hand firing-pin forward. Figs. 5, 6, 7, and 8 are central vertical longitudinal sections of Fig. 2, which show some of the parts shown in Fig. 3, but in different positions. Fig. 9 is a plan view of the action-slide. Fig. 10 is a view of the left-hand side of the action-slide. Fig. 11 is a view of the forward end of the action-slide, and Fig. 12 is a view of the rear

end of the action-slide. Fig. 13 is a fragmentary vertical section of the forward part of the breech-block, showing the ejector. Fig. 14 is a side view, partly in section, taken on the central vertical longitudinal center of the left-hand barrel-bolt, which shows the plan of attaching the barrels to the receiver. Fig. 15 is a view of the forward end of the receiver and of the mechanism therein with the barrels detached therefrom. Fig. 16 is a view of the rear end of the receiver, partly in vertical section, on a plane slightly forward of the rear end. Fig. 17 is a fragmentary side view having a portion of the receiver broken away and showing the breech-block in vertical longitudinal section, taken through the plane of the right-hand firing-pin. Fig. 18 is a nearly vertical cross-section taken on the line 18 18 of Fig. 17. Fig. 19 is a plan view, partly in section, taken on the line 19 19 of Fig. 17; and Fig. 20 is like Fig. 19, except in showing some of its parts in a different position. Fig. 21 is a plan view of the cartridge-carrier, partly in section. Fig. 22 is a view of the left-hand end of the carrier of Fig. 21 with a cartridge in place therein. Figs. 23 and 24 correspond with Figs. 21 and 22, respectively, except that they show the carrier in the position which it occupies when moved down and to the left. Fig. 25 is a side view, partly in section, of one modified form and combination of certain mechanism. Fig. 26 is a plan view of the outside of the same. Figs. 27 and 28 are vertical sections on the line 27 28 of Fig. 25, but showing parts in different positions. Fig. 29 is a vertical longitudinal section of another modified form and combination. Fig. 30 is a plan view, partly in section, of the mechanism of Fig. 29. Fig. 31 is a vertical cross-section on the line 31 31 of Fig. 30. Fig. 32 is a view similar to Fig. 29, but showing the parts in a different position; and Fig. 33 is a detail perspective view of the locking-bolt.

The numeral 1 indicates the receiver, while 2 is the magazine-barrel, and 3 is the magazine-loaded gun-barrel, and 4 is the hand-loaded gun-barrel to the left of the latter, and 5 is the trombone-slide, which reciprocates under the hand-loaded gun-barrel and lengthwise of the magazine-barrel.

The receiver has two parallel horns 6 and 7, extending forward from its body in the positions shown in Fig. 15. The horn 6 is not shown elsewhere in the drawings, because it and the mechanism which it contains are duplicates of the horn 7 and its mechanism, and the latter are shown in Figs. 1, 3, and 14. The locking-bolt 8 reciprocates longitudinally in the horn 7 and is held in its bolting position by the spiral spring 9 and is carried out of its bolting position by the knob 10, which is connected to it by a shank extending through a slot in the horn 7. The outer end of the bolt 8 terminates with the rectangular projection 11, which articulates with the recess of the same shape in the rearward edge of the fin 12, which projects downward from the gun-barrel 4. The rear end of the bolt 8 has the upward projection 13 for engagement with the breech-block when the latter is closed. The two gun-barrels 3 and 4 are united by the web 14 between them, and that web is provided at its rear end with the upward hook 15 for engagement with the recess 16 in the longitudinal center of the upper side of the receiver. The receiver also has the opening 17, through which cartridges are inserted by the hand for the gun-barrel 4 and out of which the cartridge-shells from the same barrel are ejected, and also has the opening 18, out of which the cartridge-shells from the gun-barrel 3 are ejected, and the top of the receiver has the inside ledge 19 for the purpose of limiting the forward movement of the hook-lever 62.

The breech-block 20 reciprocates longitudinally in the receiver between its forward position (shown in Figs. 3, 4, and 5) and its rear position. (Shown in Figs. 1, 2, and 7.) It thus reciprocates along two parallel longitudinal rails, extending downward from the under side of the top of the receiver into corresponding grooves in the upper face of the breech-block.

The firing-pins 21 and 22 reciprocate in recesses in the breech-block in line with the gun-barrels 3 and 4, respectively, and are held in their positions in their recesses by the bushings 23 and 24 and are driven forward in their recesses, when released from their respective triggers, by the spiral springs 25 and 26, which surround them between those bushings and their respective heads, and the firing-pins are provided with the inclined shoulders 27 and 28, respectively, and with the downward projections 29 and 30, respectively, and the firing-pin 21 is provided with the longer downward projection 31.

The body of the action-slide 32 reciprocates longitudinally under the longitudinal middle of the breech-block, its tongues 33 and 34 resting upon horizontal ledges which are appurtenant to the breech-block, and it is irregularly bifurcated in plan view, as shown in Fig. 9, the narrower space 35 between its parts being a recess which has the forward inclined end 36 and the rearward concave and

inclined ledge 37, and the wider space 38 between its parts being a communicating recess, and the action-slide on the two sides of that recess is provided at the rear with the upwardly-inclined horns 39 and 40, and is also provided outwardly from those horns and below them with the horizontal wings 41 and 42, and the upper sides of those wings are provided with the shallow recesses 43 and 44, respectively. The action-slide is worked through its arm 45 and extension 46, which extension passes forward out of the receiver in the location shown in Fig. 15 and is detachably connected with the trombone-slide 5 by the interlocking-joint shown in Fig. 7.

The locking-bolt 47 occupies the recess 38 of the action-slide and extends upward therefrom through the breech-block 20 to the under side of the top of the receiver, as shown in Fig. 1, and is sometimes forced still farther upward and into the recess 48 in the receiver, as shown in Fig. 3. The locking-bolt is rectangular in plan view, except that the forward right-hand corner of it is cut away, so as to accommodate it to the form of the recess 48, (shown in Fig. 2;) and that recess has that form in order to leave sufficient body in the top of the receiver at that locality. The forward side of the locking-bolt has the recess 49. Its left-hand side has the recess 50 between its body and its ledge 51, the upper side of that recess being partly horizontal, as indicated by the line 52 in Fig. 5, and partly inclined, as indicated by the line 53 in Fig. 6, and the lower side of that recess being partly horizontal and partly inclined, because the top of the ledge 51, which extends out from that side of the locking-bolt, is so, and the left-hand side of the locking-bolt also has the inclined shoulder 54, which faces toward the rear for engagement with the firing-pin 22. The right-hand side of the locking-bolt has counterparts of the recess 50, the ledge 51, and the shoulder 54, which, though not shown in the drawings, may be named the recess 55, the ledge 56, and the shoulder 57, respectively. The recesses 50 and 55 are occupied by the inclined horns 40 and 39, respectively, of the action-slide, and the shoulders 54 and 57 engage with the inclined shoulders 28 and 27, respectively, of the firing-pins.

The starting-lever 58 turns on the trunnion 59 in a recess in the breech-block and is provided with the lateral projection 60, forming part of its lower end, and the surface of which end is an arc of a circle concentric with the trunnion 59. The starting-lever also has the pin 61, which turns in a recess in the rear end of the hooked lever 62.

The hooked lever 62 has a low convex shoulder 63, adapted to rolling contact with the under side of the top of the receiver, and a corresponding convex shoulder 64, adapted to corresponding contact with the upper side of the bottom of the breech-block, and which shoulders alternately constitute its fulcrum,

and the hooked lever is also provided with the curved hook 65 for engagement with the recess 66 in the top of the receiver.

The curved carrier 67 has the shoulder 67<sup>a</sup> and is provided with the concave holder 68 and with the projections 69 and 70, extending downwardly from the latter, and the carrier has the hub 71, which turns upon the pivot 72 in the inclined position shown in Figs. 3 and 16, the pivot being fixed to the wall of the receiver and the opening in the head of the carrier being a tapering one, with the larger end adjacent to the receiver-wall, as shown in Figs. 21 and 23. The carrier also has the arm 73, which extends rearward and upward from the hub 71 into the longitudinal recess 74 in the bottom of the breech-block.

The triggers 75 and 76 are fixed under the firing-pins 21 and 22, respectively, and are provided with the usual sears for engagement with their respective firing-pins, and the sides of those sears are provided with inward projections 77 and 78, respectively, for engagement with the recesses 43 and 44, respectively, of the action-slide. The triggers are also provided below their pivots with the projections 79 and 80, respectively, for engagement with the notches 81 and 82, respectively, of the safety-lock 83. That safety-lock turns upon the pivot 84, which is fixed to the receiver, and its upwardly-extending part is provided with the projection 85 for engagement with the action-slide lock 86 and terminates in the thumb-piece 87, by means of which it is adapted to be worked by a thumb of the gunner. That thumb-piece is a plate which has the outline shown in Fig. 4, and its ends are adapted to spring into the forward and rearward recesses in the receiver, which are shown adjacent thereto in Fig. 3. The action-slide lock 86 is a strong flat spring, the rear end of which is fixed to the receiver and the forward end of which is adjacent to the rear end of the wing 41 of the action-slide, and the midway portion of which is provided with the notch 88, adjacent to the projection 85 of the safety-lock, and the action-slide lock is also provided with the thumb-piece 89, which extends through the recess in the upper wall of the receiver and by means of which the gunner can depress the action-slide lock.

The right-hand extractor 90 is shown in Figs. 1, 2, and 13 of the drawings and is a hooked spring, the rear end of which is fixed to the breech-block and the hook of which is always normally in engagement with its cartridge when the breech-block is closed.

The left-hand extractor 91 is shown in Figs. 4 and 14 and is pressed out of engagement with its cartridge by the spring 92 except when forced into that engagement by the firing-pin 22 striking its inclined rearward arm 93 when the firing-pin flies forward to its cartridge.

The ejector 94 consists of a piece which reciprocates longitudinally through a course of about one-eighth of an inch in a recess in the forward end of the breech-block in the posi-

tion shown in Fig. 15, and is provided with the projection 95, extending downward from the rear end of its body through a slot in the bottom of the breech-block for engagement with the projection 96 from the inside of the rear part of the receiver, and the ejector is also provided with the diagonal head 97, the face of which is normally flush with the forward end of the breech-block, while the projections 98 and 99 extend forward from the face of that diagonal head.

The mode of operation of the mechanism of the first eight sheets of the drawings is as follows: The barrels are attachable to the receiver by placing them and their appurtenances in the upwardly-inclined position relative to the receiver which is shown in Fig. 14 and in then lowering the barrels to the relative position shown in Fig. 3. That lowering causes the projection 15 to enter the recess 16 and causes the trombone-slide 5 to articulate with the extension 46 of the action-slide 32; but in order that the projection 11 of the bolt 8 may articulate with the recess in the fin 12 the bolt must be forced backward against the resistance of the spring 9 until the barrels are lowered into position, when the knob 10 is released from the hand, and the spring 9 carries the projection 11 into the recess of the fin 12. In order that the bolt 8 may be thus forced back to provide for this articulation, the breech-block must be open at the time, for when it is closed it holds the projection 13 of the bolt 8 in the position shown in Fig. 3, and thus prevents the bolt 8 being forced back at that time, and in that way prevents the barrels from being disconnected with the receiver when the breech-block is closed. Conversely, also, the projection 13 prevents the breech-block from being closed when the barrels are imperfectly fixed to the receiver.

Now assuming that the magazine-barrel has been supplied with cartridges, one of those cartridges will be forced by the spring in the magazine-barrel into the receiver and upon the carrier 67, the curved character of which raises the head of the cartridge as it passes backward until it is stopped by the shoulder 67<sup>a</sup>, and assuming that the parts of the mechanism are in the position shown in Fig. 3, except that the firing-pin 21 is in the forward position shown in Fig. 4 and except that the thumb-piece 87 is in the forward position shown in Fig. 1, and the safety-lock 83 is consequently unlocked from the triggers, one performance of the program of the gun is as follows:

The gunner depresses the thumb-piece 89 with the thumb of his right hand, so as to unlock the action-slide, and with his left hand he draws back the trombone-slide, and thus forces back the action-slide as far as it will go. During that movement of the action-slide its wings 41 and 42 pass under the projections 77 and 78, respectively, of the sears, and thus lock them, and at the beginning of that move-

ment the horns 40 and 39 of the action-slide operate upon the ledges 51 and 56 of the locking-bolt and draw it downward out of the recess 48 to the position shown in Fig. 5; and that downward movement of the locking-bolt presses its inclined shoulders 54 and 57 against the inclined shoulders 28 and 27, respectively, of the firing-pins 21 and 22, and consequently starts those firing-pins backward far enough to withdraw their noses within the forward face of the breech-block. At that point in the backward movement of the action-slide the inclined end 36 of its recess 35 reaches the adjacent side of the lower end of the starting-lever 58, and thereupon the further backward movement of the action-slide operates through that lever to carry back the breech-block and with it the locking-bolt and the firing-pins through the position shown in Fig. 6 to that shown in Figs. 1, 2, and 7.

During the first part of that operation, until the lower end of the starting-lever reaches the recess 49 in the locking-bolt 47, the breech-block is started by a powerful leverage, due to the fact that the starting-lever operates as a lever of the second order, with its fulcrum at the pin 61 and its resistance-point at the trunnion 59 and its power-point near its lower end; but after the lower end of the starting-lever reaches the recess 49 of the locking-bolt it acts only as an arm of the breech-block, so that the breech-block is thereafter carried back at the same speed with the action-slide; but while the starting-lever was acting as a lever it raised the rear end of the hooked lever 62, and thus withdrew the hook 65 from the recess 66, so as to finally unlock the breech-block from the receiver. When the starting-lever is stopped by the locking-bolt from turning farther, its end, which is formed in the arc of a circle concentric with the trunnion 59, is against the concave shoulder 37 of the action-slide. The further backward movement of the breech-block carries the projections 29 and 30 of the firing-pins over the sears of the triggers, so that the firing-pins are retained and cocked by the sears, when the breech-block is subsequently returned to the firing position. The triggers are permitted to be depressed by the projections 29 and 30 of the firing-pins passing over them, because at that time their projections 77 and 78 pass downward into the recesses 43 and 44 in the wings 41 and 42, respectively, of the action-slide.

When the breech-block reaches its rearward position, as shown in Figs. 1 and 2, the forward end of the recess 74 in the breech-block reaches the upper end of the arm 73 of the carrier and forces it backward a short distance. That movement of the arm 73 raises the carrier from the position shown in Fig. 3 to that shown in Fig. 1, and at the same time deflects the holder 68 toward the right, so that the holder which before held the cartridge-shell in the position shown in Fig. 24 now holds it in the position shown in

Fig. 22, so as to guide its forward end into the barrel 3. This capability of deflection of the holder 68 from left to right and contrariwise is permitted by the flaring character of the journal-opening in the arm 71, that flaring character being indicated in Figs. 21 and 23 as consisting in the gradually-increasing diameter of that journal-opening from left to right. When the carrier is thus raised in position, the stops 69 and 70 prevent the next cartridge in the magazine from entering the receiver. Thereupon the gunner inserts a cartridge through the opening 17, and then forces forward the trombone-slide 5, which carries with it the action-slide 32. During the first part of the forward movement of the action-slide the lower end of the starting-lever 58 is held in the position shown in Fig. 7 by its frictional contact with the convex shoulder 37 of the action-slide, and therefore the starting-lever at that time operates only as an arm of the breech-block, through which the breech-block and the locking-bolt are carried forward with the action-slide. At the same time the starting-lever holds the action-slide back in its rear position relative to the locking-bolt, and thus the action-slide horns do not then raise the locking-bolt and make it drag along the under side of the top of the receiver while the breech-block is being closed, and the action-slide holds the starting-lever during the same time, so that the latter cannot force the end of the hook 65 against the under side of the top of the receiver while the hooked lever 62 is being carried forward as far as it will go; but when the forward motion of the action-slide has gone so far as to carry the breech-block to the position shown in Fig. 6 the forward end of the hook-lever 62 collides with the ledge 19 in the receiver, and that contact prevents that lever from any further forward motion, whereupon the starting-lever, as the action-slide is carried still farther forward, must turn upon the pin 61, and thus becomes again a lever of the second order, operating powerfully to force finally home the breech-block through the trunnion 59. After the breech-block has been thus forced home the action-slide continues to move still farther forward, and that motion operates through the horns 39 and 40 to raise the locking-bolt into the recess 48 and also operates through the starting-lever to raise the hook 65 into the recess 66, and when the action-slide reaches its forward position the action-slide lock 86 springs up behind the wing 41, as shown in Fig. 3, and locks the action-slide in its forward position, and the arm 73 reaches the rearward end of the slot 74, and is forced thereby upward and to the right, so as to carry the holder 68 downward and to the left, as shown in Figs. 3, 23, and 24, and thus to give easy entrance to another cartridge from the magazine. Thereupon the gunner may force the thumb-piece 87 backward, so as to lock the triggers, and may afterward reverse that movement, so as to unlock them, when either

or both of the barrels can be independently discharged.

The right-hand barrel can be discharged and reloaded from the magazine as often as desired without discharging or reloading the left-hand barrel, because the left-hand extractor 91 is inoperative as long as the left-hand firing-pin 22 is held back by the trigger 76; but the extractor 90 will withdraw from the barrel 33 the cartridge or the cartridge-shell therein whenever the breech-block is opened, and whenever the breech-block is opened any cartridge or cartridge shell or shells withdrawn by either or both of the extractors will be ejected from the receiver by the ejector 94 when the downward projection 95 of that ejector collides with the projection 96 of the receiver, and thus forces the ejector forward relatively to the breech-block. That forward movement of the ejector operates through the head 97 and its projections 98 and 99 to throw out of the receiver any cartridge or cartridge shell or shells which are in it.

The modified mechanism shown on Sheet 9 of the drawings consists of a single-barrel hand-loaded breech-loading firearm in which the firing-pin is driven by a hammer, and which contains, of the distinctive mechanism shown in the first eight sheets of the drawings, only a breech-block, a locking-bolt, and an action-slide. The numeral 1 indicates the receiver, in which the breech-block 20 reciprocates, and the action-slide 32 is not bifurcated, as before, having only the horn 40 on one side of the action-slide, and having nothing to operate upon any starting-lever, nor to lock any trigger, nor to be locked by any action-slide lock.

The locking-bolt 47 has the ledge 51 under the horn 40 of the action-slide, and has also the central longitudinal opening 100 for the reception of the firing-pin 101, and is provided with a horizontal wing 102 on its left-hand side, which wing moves vertically in the recess 103, which extends through the breech-block and into the receiver and moves horizontally in the recess 104 in the receiver. The locking-bolt is also provided with the horizontal wings 105 and 106 on its right-hand side, which move vertically in the recesses 107 and 108, which extend through the breech-block and into the receiver, and move horizontally in the recess 108<sup>a</sup> and a parallel recess below it, respectively, in the receiver.

The mode of operation of the modified mechanism of Sheet 9 begins with forcing back the action-slide 32 as far as it will go. At the beginning of that movement its horn 40 operates upon the ledge 51 to draw the locking-bolt downward, so that its wings 102, 105, and 106 are in the lower parts of the recesses 103, 107, and 108, respectively, as shown in Fig. 28, instead of being in their upper parts, as shown in Fig. 27. At that point in that backward movement of the action-slide the locking-bolt begins to be forced backward in the receiver and carries the breech-block and the

firing-pin along till the receiver is open on top to receive a cartridge. The cartridge being put there, the action-slide is forced forward, and that movement first carries the locking-bolt and breech-block forward as far as they will go, and then raises the locking-bolt by means of the upper inclined edge of the horn 40, and thus carries the wings 102, 105, and 106 into the upper parts of the recesses 103, 107, and 108, where they prevent any backward movement of the breech-block when the cartridge is discharged by the firing-pin, driven forward against the resistance of its spring by the blow of the hammer.

The modified mechanism shown on Sheet 10 of the drawings consists specially of a simpler form of starting device than that of the first eight sheets, the difference consisting, essentially, in employing the starting-lever 109 instead of the starting-lever 58 and the hooked lever 62 of the other mechanism. In this case the starting-lever 109 is worked by the action-slide 32 substantially as the starting-lever 58 is worked by the same slide, and it turns on a pivot 110, which is fixed to the breech-block 20. The shorter end of the lever 109 has the lateral cylindrical projection 111, which engages with the hanging bracket 112, which depends from the under side of the top of the receiver, and that projection also engages with the lower side of the rail 113, which also depends from the under side of the top of the receiver on both sides of the recess 48 and extends across that recess longitudinally. The shorter end of the lever 109, including its projection 111, engages also with the recess 114 in the top of the receiver, and is limited in its downward movement by the pin 115, which is fixed to the breech-block. The horn 40 of the action-slide is provided in this case with the lateral projection 116 for engagement with the inclined slot 117 between the body of the locking-bolt 47 and its ledge 51.

The mode of operation of the mechanism of Sheet 10 is modified as compared with that of the first eight sheets of the drawings, in that when the action-slide in its backward movement reaches the starting-lever 109 the fulcrum of that lever, upon which it powerfully starts back the breech-block, is the forward side of the recess 114 in the receiver, and as the breech-block moves and thus withdraws the shorter end of the lever from that recess the projection 111 of the latter moves down along the rear end of the hanging bracket 112, so that it constitutes the fulcrum of the lever until the shorter end of the lever is stopped in its downward movement by the pin 115; and thereafter during the rest of the backward movement of the action-slide the lever acts only as an arm to connect the action-slide with the breech-block. During that backward motion the projection 111 passes along under the rail 113 until the breech-block reaches its rearmost position, and when the action-slide is carried forward to force home the breech-block the projection

111 retraces its path along the under side of the rail 113, and the lever 109 acts only as an arm of the breech-block until the forward side of the projection 111 collides with the rearward end of the depending bracket 112, whereupon the forward end of the rail 113 and the rearward side of the recess 114 become the fulcrum of the lever, by means of which the final forcing of the breech-block home is multiplied in power, and the shorter end of the lever, including its projection 111, is forced upward from the position shown in Fig. 29 into the recess 114, as shown in Fig. 32.

I claim as my invention—

1. The combination of a receiver, and a gun-barrel; detachably connected by means of a recess and a hook appurtenant to their adjacent ends; and by means of a barrel-bolt, the outer end of which articulates with the gun-barrel, or with a part appurtenant thereto, and the inner end of which engages with the breech-block, so that the barrel cannot be detached from the receiver, when the breech-block is in its firing position, and so that the breech-block cannot be forced to its firing position, when the barrel is imperfectly attached to the receiver; all substantially as described.

2. The combination of a trombone-slide, on the gun-barrel; and an action-slide, on the inside of the receiver, and extending outward through a wall thereof, to an interlocking joint with the trombone-slide; which interlocking joint consists of a recess and a projection on one side of the rearward end of the trombone-slide; and a projection and a recess on the opposite side of the forward end of the action-slide extension; so that the trombone-slide and the action-slide are attached and detached, when the gun-barrel is lowered into its seat in the receiver, or lifted out of that seat, as the case may be; all substantially as shown and described.

3. The combination of a breech-block; and an action-slide to move it backward and forward; and a lever mechanism, located between the breech-block and the action-slide, which powerfully and slowly starts the breech-block, and forces it home, respectively, at the beginning of its backward movement, and at the end of its forward movement, and which, during all other portions of the backward and forward movement, acts only as an arm of the breech-block, to carry the breech-block with the speed of the action-slide, undiminished by intermediate leverage; all substantially as described in that behalf.

4. The combination of a breech-block; and an action-slide, to move it backward and forward; and compound-lever mechanism, located between the breech-block and the action-slide, which acts as a lever at the beginning of the backward movement, and at the end of the forward movement, to powerfully and slowly start the breech-block, and force

it home, respectively, and which acts as an arm of the breech-block, during all other portions of the forward and backward movement, to carry the breech-block, with the speed of the action-slide, undiminished by intermediate leverage; all substantially as described, in that behalf.

5. The combination of a reciprocating locking-bolt, for locking the breech-block in its closed position in the receiver; and an action-slide, reciprocating substantially at a right angle with the path of the locking-bolt, for moving the locking-bolt to and from its locking position, and inclined planes appurtenant to the locking-bolt and the action-slide, for transmitting the motion of the latter to the former; substantially as described, in that behalf.

6. The combination of a vertically-moving locking-bolt, for locking the breech-block in its closed position in the receiver; and an action-slide for moving the locking-bolt downward and upward from and to its locking position; substantially as described, in that behalf.

7. The combination of an action-slide, provided with an inclined horn; and a locking-bolt, provided with an inclined recess; whereby the action-slide moves the locking-bolt out of its locking position, when the action-slide is moved in one direction, and into its locking position, when the action-slide is moved in the other direction; all substantially as described, in that behalf.

8. The combination of an action-slide; and an action-slide lock having a part projecting into the path of the forward movement of the firing-pin; and a firing-pin; so that the lock locks the slide, when the firing-pin is cocked, and the firing-pin unlocks the lock from the slide, when it is discharged; all substantially as described.

9. The combination of an action-slide; an action-slide lock; one or more triggers; and a safety-lock, by means of which to simultaneously lock and unlock the trigger, or triggers, and the action-slide lock; all the parts being constructed and combined substantially as described.

10. The combination of a starting-lever; and an action-slide; the slide working the lever, and the lever modifying the action of the slide; substantially as shown in that behalf.

11. The combination of an action-slide, reciprocating adjacent to a trigger; and a trigger, provided with a sear, and also with a projection, or other part, by means of which, the action-slide holds the sear, in positive engagement with its firing-pin or hammer, until the breech-block is closed; all substantially as described.

DUDLEY S. SEYMOUR.

Witnesses:

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ESTHER S. WALKER.