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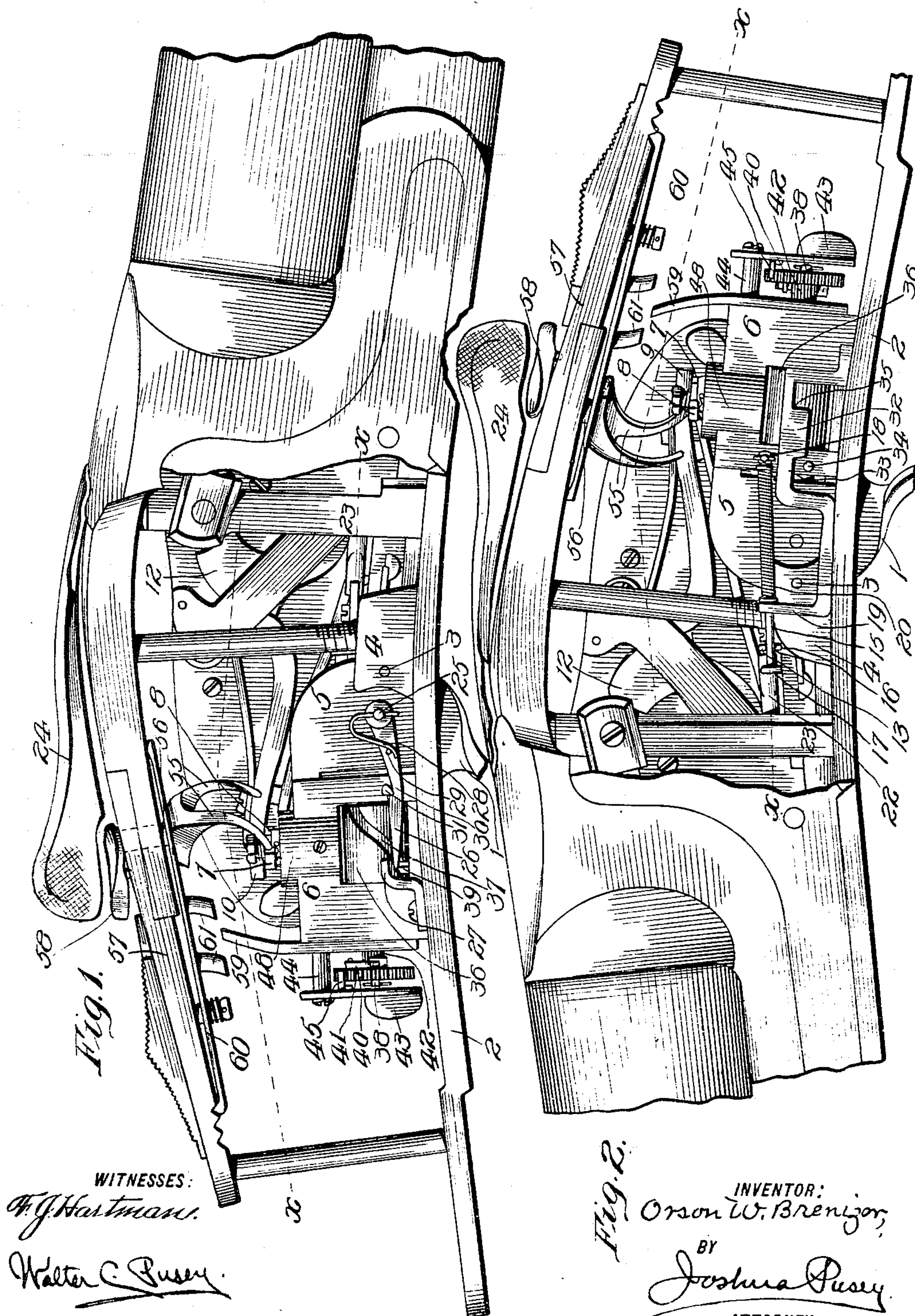
PATENTED OCT. 8, 1907.

O. W. BRENIZER.

# SINGLE TRIGGER MECHANISM FOR DOUBLE BARRELED GUNS.

APPLICATION FILED AUG. 8, 1903. RENEWED FEB. 16, 1905.

4 SHEETS—SHEET 1.





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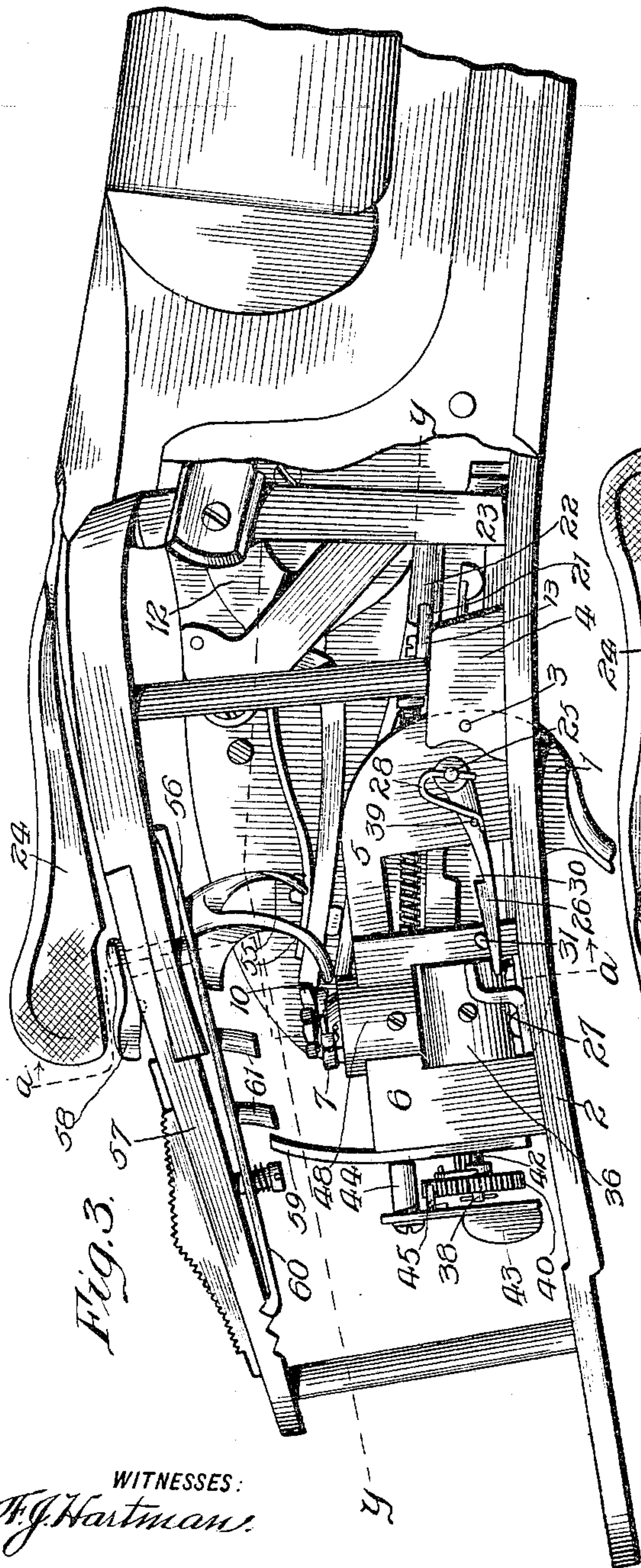
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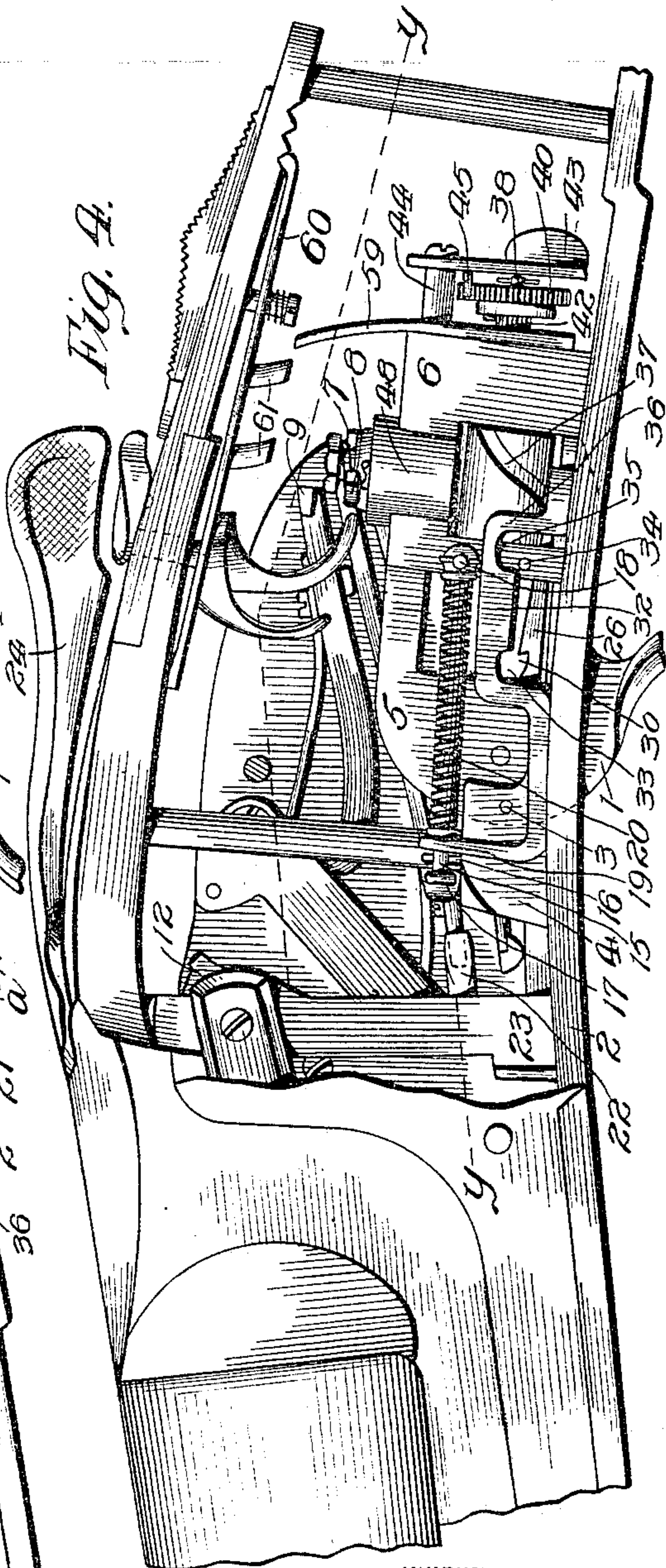
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4 SHEETS—SHEET 2.



WITNESSES:  
*H. J. Hartman.*

*Walter C. Pusey.*



INVENTOR:  
*Orson W. Brenizer,*  
BY  
*Joshua Pusey,*  
ATTORNEY.



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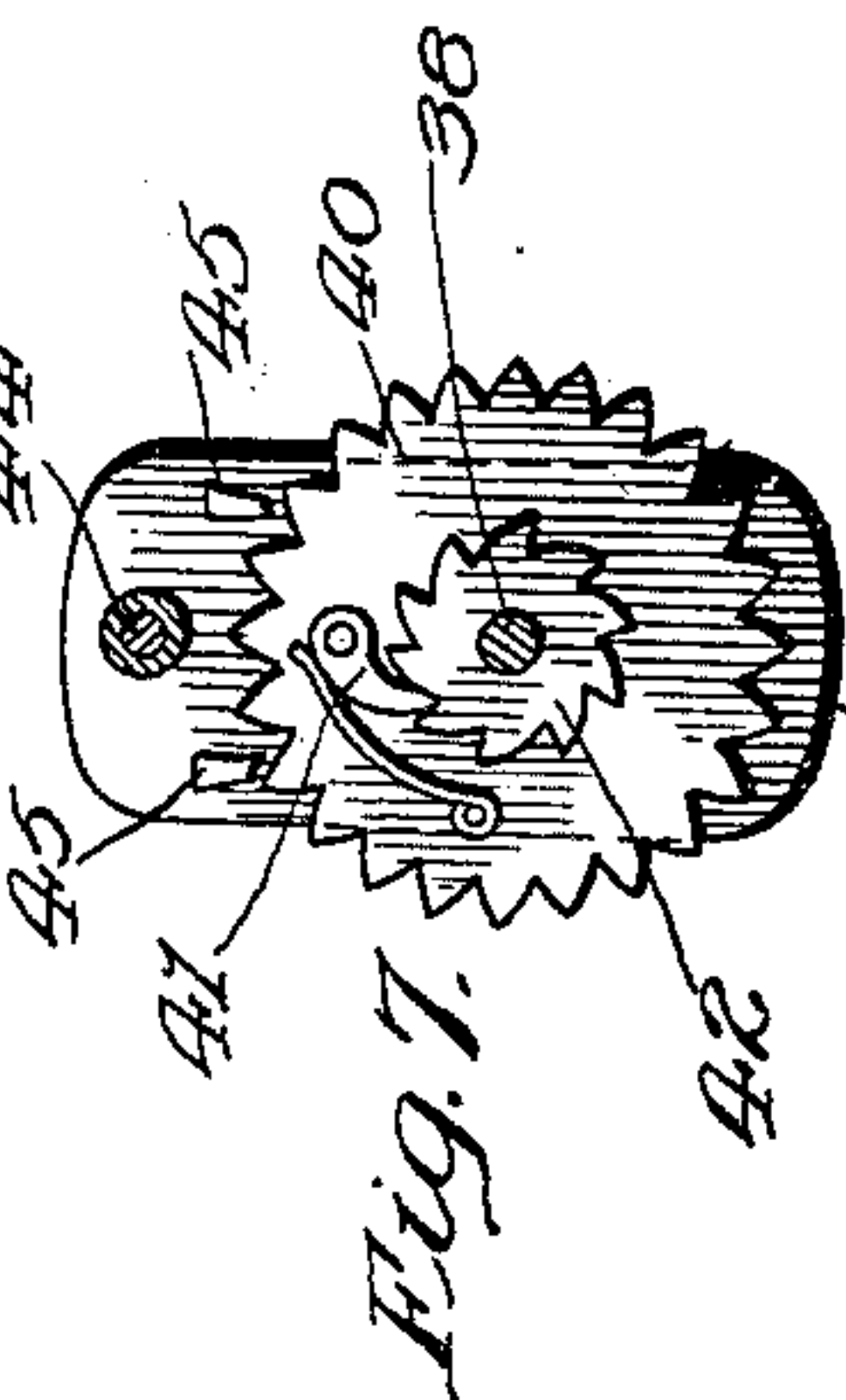
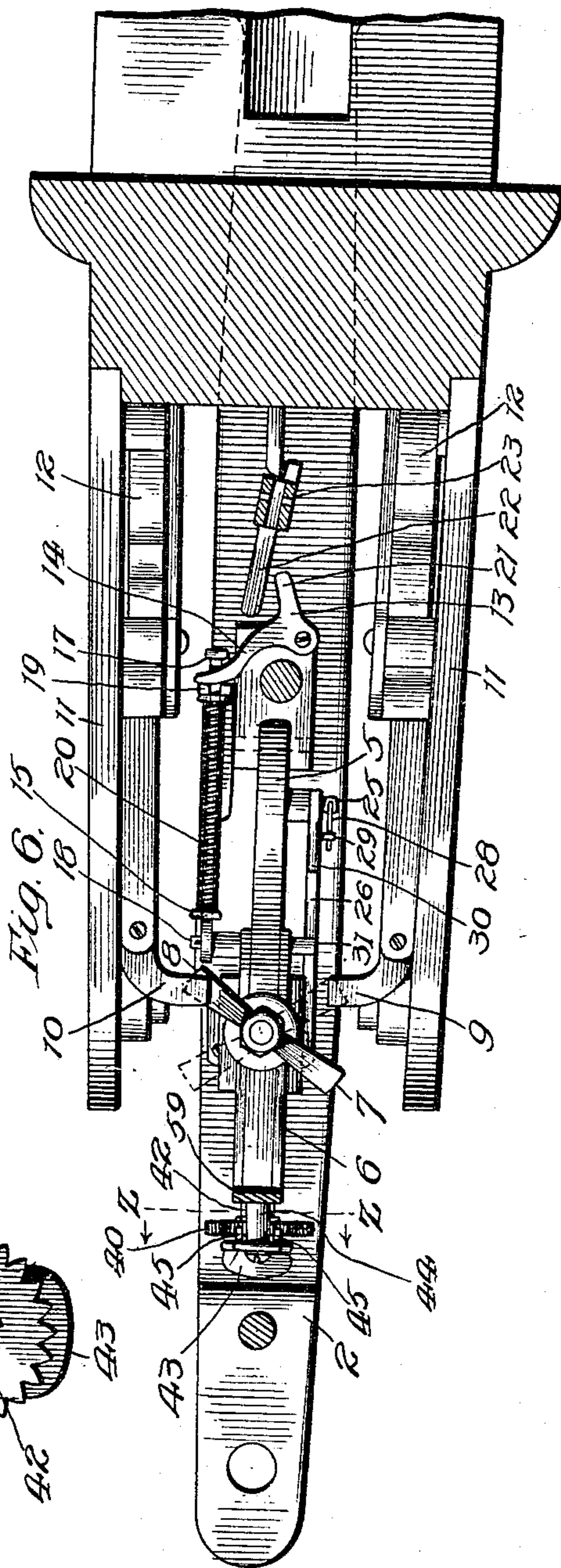
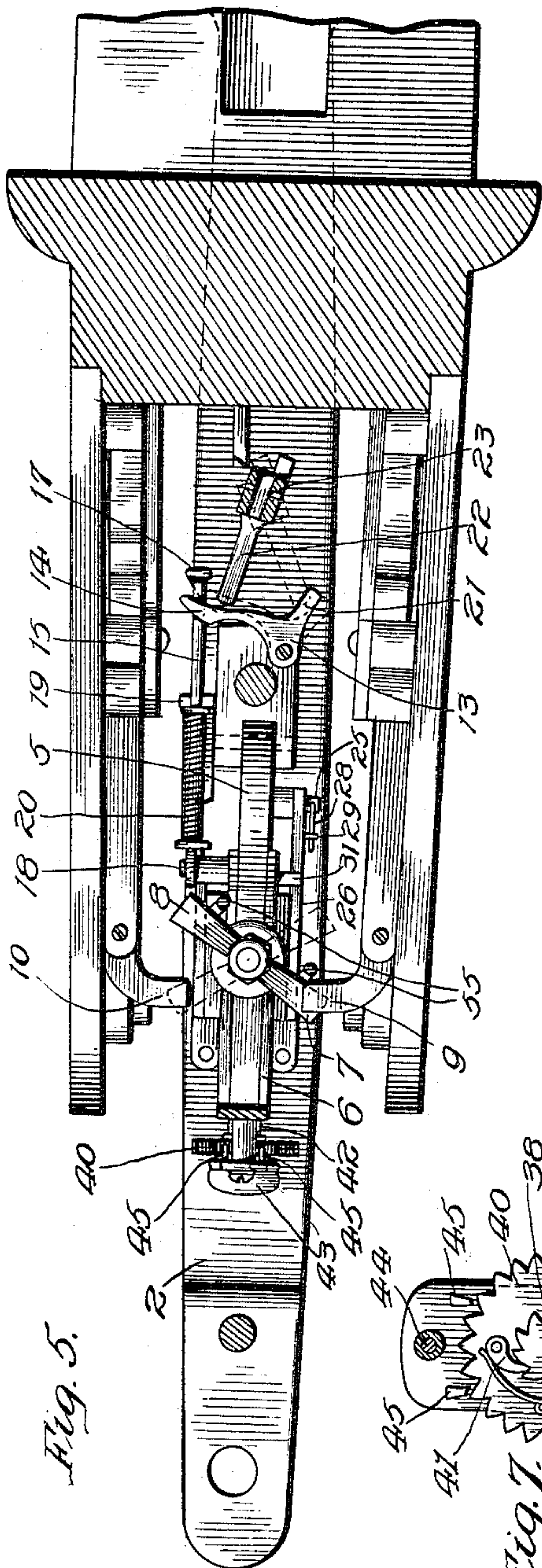
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4 SHEETS—SHEET 3.



**WITNESSES:**

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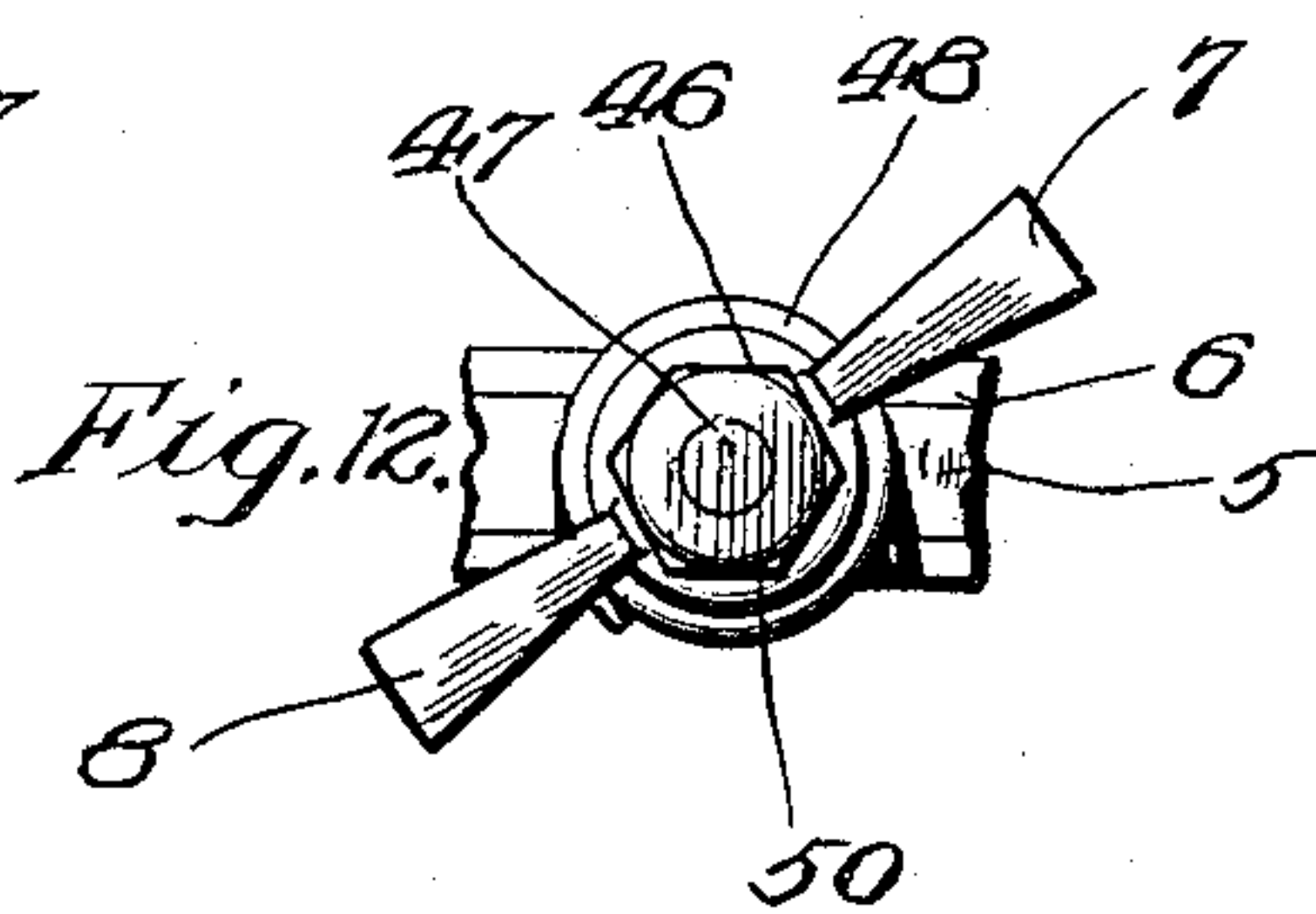
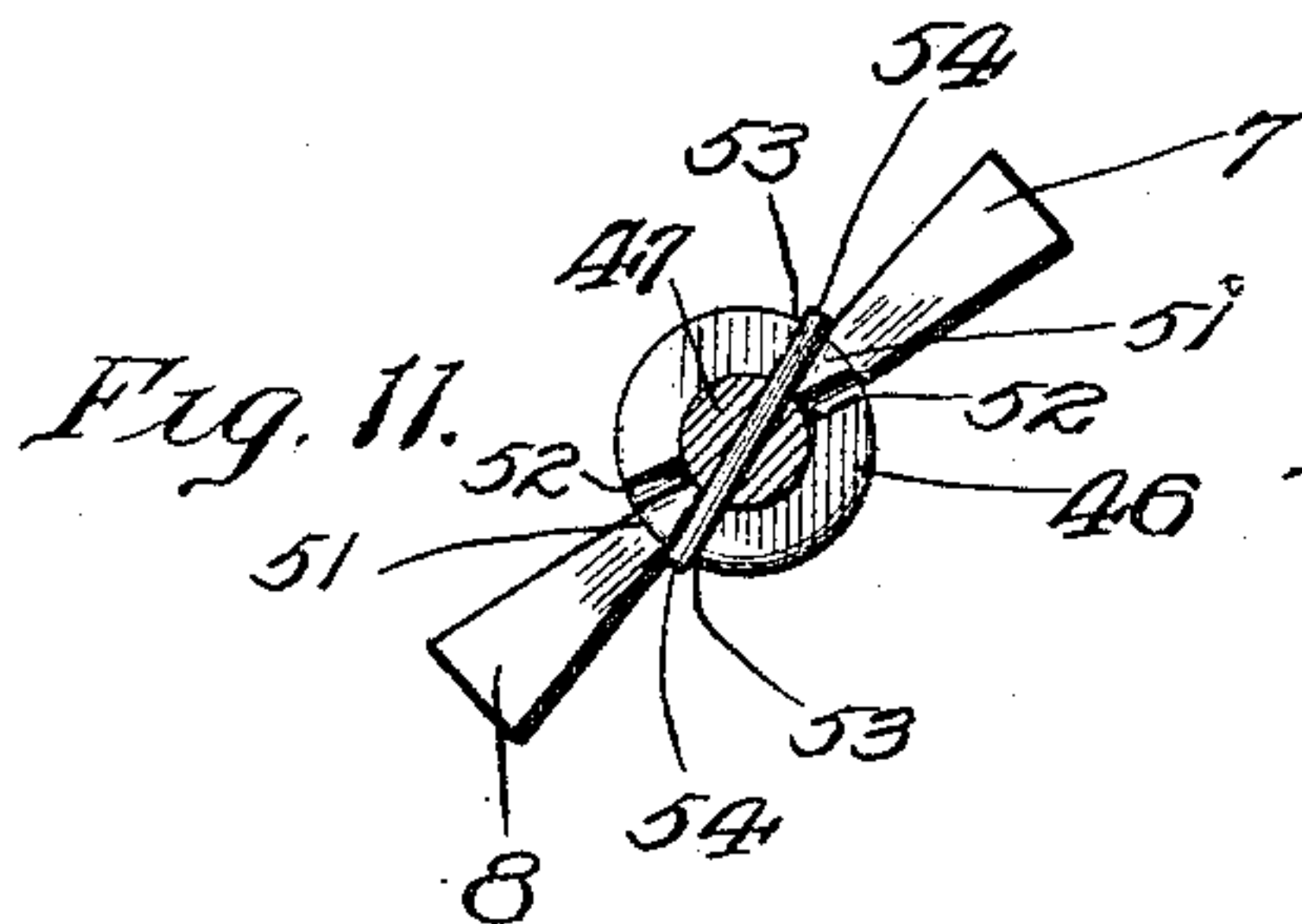
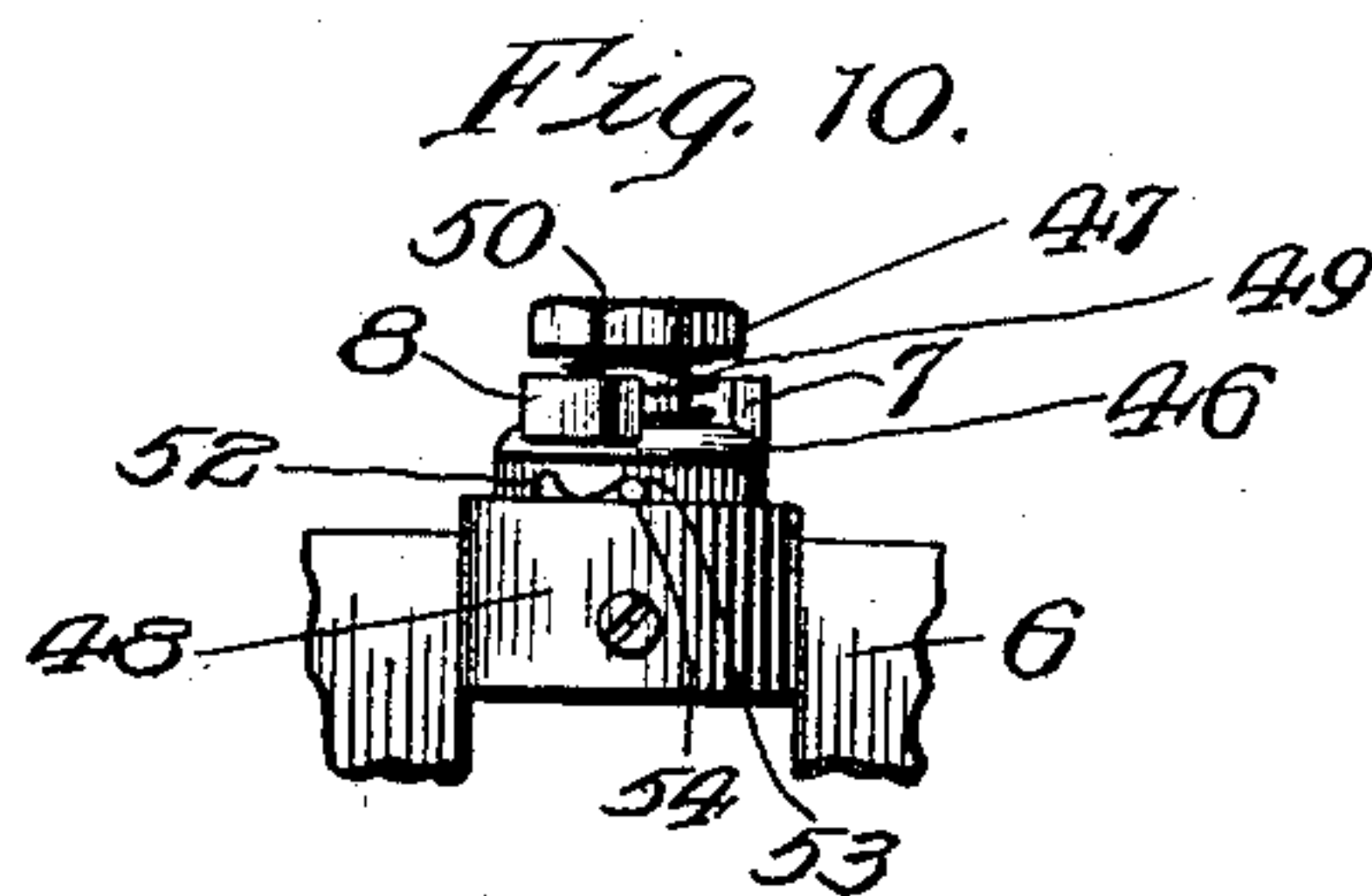
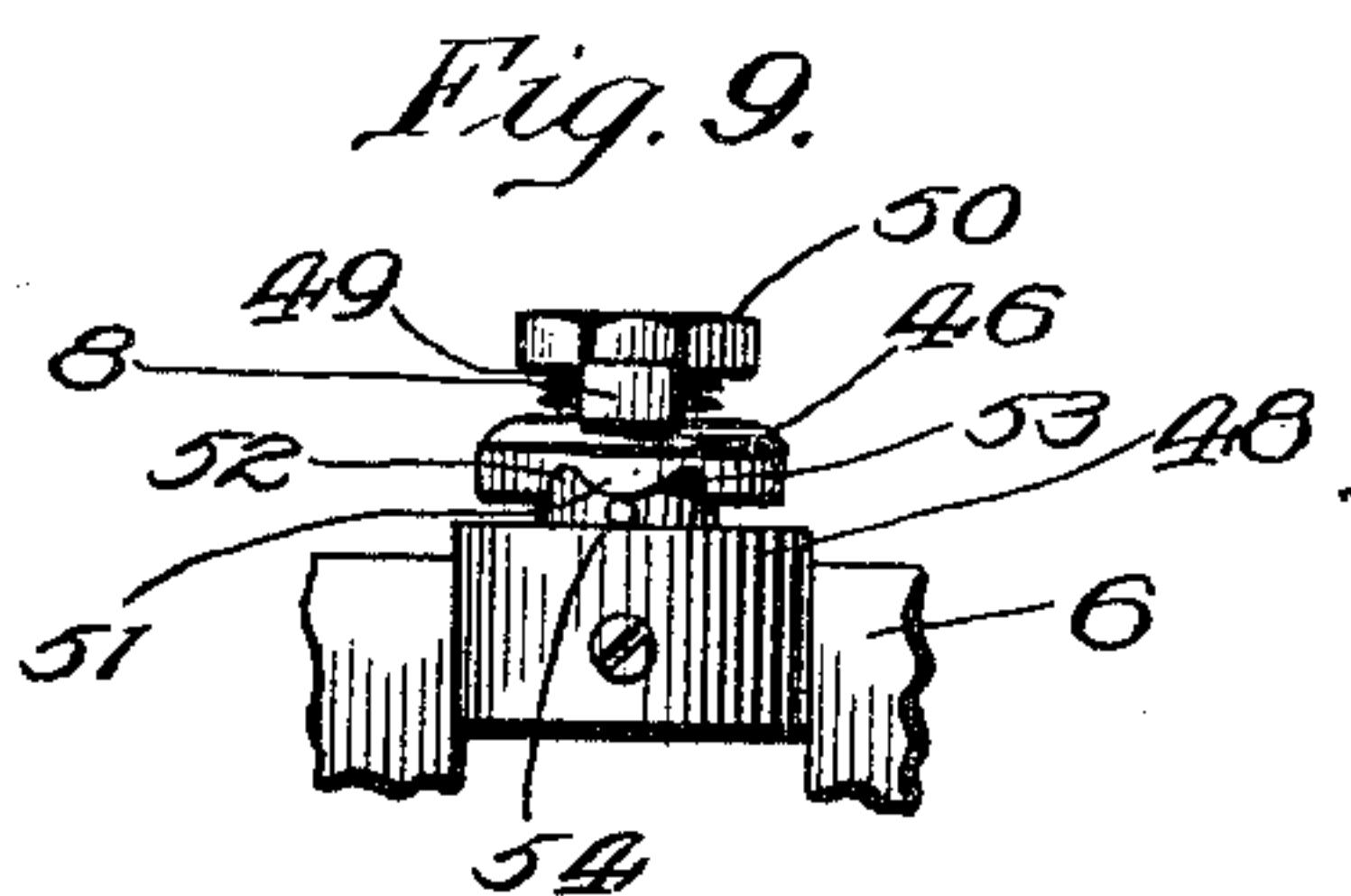
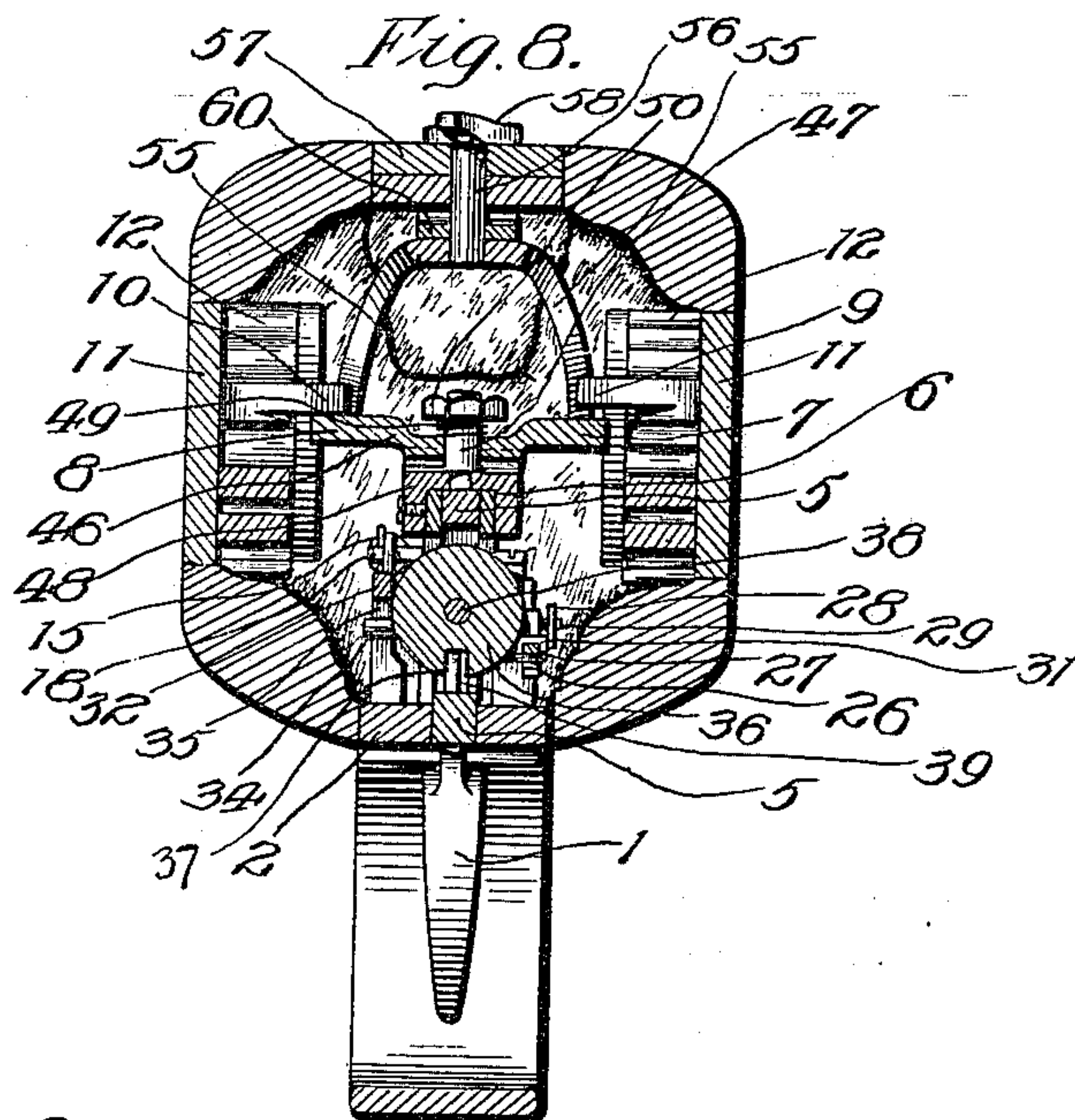
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WITNESSES:

*F. J. Hartman.*

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INVENTOR:

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# UNITED STATES PATENT OFFICE.

ORSON W. BRENIZER, OF PHILADELPHIA, PENNSYLVANIA.

## SINGLE-TRIGGER MECHANISM FOR DOUBLE-BARRELED GUNS.

No. 867,697.

Specification of Letters Patent.

Patented Oct. 8, 1907.

Application filed August 8, 1903, Serial No. 168,727. Renewed February 16, 1905. Serial No. 245,876.

*To all whom it may concern:*

Be it known that I, ORSON W. BRENIZER, a citizen of the United States, residing at the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Single-Trigger Mechanism for Double-Barrel Guns, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a side elevation of the lock portion of a double-barrel-gun, containing my invention, the lock-plate, and parts carried thereby, on the right side having been removed, and the part being in position ready to fire the right barrel (the sear and hammer for which have been removed). Fig. 2 is a similar elevation looking at the opposite side, the lock-plate on that side and parts carried thereby (the left) being removed. Figs. 3 and 4 are views similar to Figs. 1 and 2 respectively, immediately prior to firing the second (left) barrel, the first (right) barrel having been previously fired. Fig. 5 is a full section on line  $x-x$ , Figs. 1 and 2. Fig. 6 is a similar section on line  $y-y$ , Figs. 3 and 4. Fig. 7 is a detail of the escapement device (enlarged) being a section on line  $z-z$ , Fig. 6. Fig. 8 is a section across the mechanism looking toward the barrels of the gun, and taken approximately on the irregular line  $a-a$ , Fig. 3, the parts being shown in the position seen in that figure (that is the right barrel fired and the left ready for firing). Figs. 9, 10, 11, and 12, are enlarged details of the sear-engaging arms and their supporting parts.

The object of this invention is to provide an improved single trigger mechanism for double-barrel guns that shall be simple in construction and reliable in operation, and possessing certain other advantages hereinafter mentioned.

The leading feature of the invention comprises a pivoted trigger, having an arm or blade within the lock-chamber, a movable or sliding piece or plate, mounted on said blade, two arms carried by said piece, one of which is adapted to engage under one of the usual sears for releasing the hammer, when said piece is in the forward position; and the other arm is adapted to engage under the other sear, for the other hammer, when the piece is in the retracted position; together with a spring tending to press back said piece, means for retaining the same in the forward position, against the stress of said spring, and means for releasing said piece, through the movement of the trigger immediately after the firing of the first barrel of the gun, whereby said piece is permitted to be carried back by the said spring to the retracted position, in which position said other arm of the piece is adapted to engage the sear on that side when the trigger is operated to fire the second barrel.

The invention also comprises certain mechanisms designed to insure accuracy of operation and avoidance

of accidental firing of the gun, as hereinafter described, and particularly pointed out.

Referring to the accompanying drawings,—which show only such of the usual parts of a double-barrel gun as are necessary to an understanding of my invention,—1 denotes the usual trigger that depends through a slot in the trigger plate, 2, on the under side of the frame of the gun. The trigger, which is pivoted on a pin, 3, of a support, 4, that rises from the inner side of the trigger-plate, has a rearwardly extending, and, in this instance, bifurcated, blade, 5. Mounted on the latter, so as to be capable of sliding to and fro, longitudinally thereon, is a plate, 6, hereinafter termed the "slide-plate". Secured to the top of this slide-plate and extending laterally on opposite sides thereof are two arms, 7 and 8, the first of which, as hereinafter described, is adapted to engage the under side of the inwardly projecting free end, 9, of the right sear of the gun, when the slide-plate is in one position, and the other arm, 8 is adapted to engage under the like end, 10, of the left sear, when said plate is in another position.

The sears are pivoted to the sides, 11, of the lock-chamber (commonly termed the "lock-plate") in the usual way and are adapted, respectively, to release the hammers, 12, when actuated by the trigger to fire the gun.

On the before-mentioned support, 4, is pivoted a bell-crank lever, 13, to the long arm, 14 of which is connected one end of a rod, 15; the latter in this instance passing through a slot or bifurcation, 16, of the arm, and said rod having a head, 17, on its free end that engages the said arm. The other or rear end of the rod is connected to a stud, 18, on the side of the slide-plate, 6. This rod also passes through a slot or opening in a post, 19, that rises from the trigger-plate, 2. A coil-spring, 20, on said rod, between a collar on the latter and the side of post, 19, tends to slide back the plate, 6, on the trigger-blade. The other or free arm, 21, of said bell-crank lever, 13, is adapted to be engaged by a projection, 22, of the usual rotatable post, 23, operated by an exterior lever, 24, for breaking and relocking the barrels; this engagement taking place when said lever is moved to unlock the barrels, as and for the purpose explained further on.

Pivoted on a pin, 25, on the right-hand side of the trigger-blade, 5, is a bar, 26, whose rear free end extends beneath a lug, 27, of the trigger-plate. A bent-spring, 28 secured to the pin, 25, and engaging the under side of a stud, 29, on bar, 26, tends to rotate the latter upwardly on its pivot. Said bar 26 has on its upper side a notch or off-set, 30, with which a tooth or projection, 31, on the side of the slide plate, 6, is adapted to engage when the latter is brought into the forward position (against the stress of the spring, 20) and retain said plate in position as hereinafter described.



The foregoing comprises a description of the parts constituting the leading feature of my invention, other parts or features, not absolutely essential, although desirable, being hereinafter described.

5 The mode of operation of the mechanism hereinbefore described is as follows, assuming, first, that the parts thereof are in the relative positions occupied by them when ready to fire the right barrel of the gun, which position they occupy in Figs. 1, 2, and 5:—At  
10 this time, the slideplate, 6, and adjuncts are in the advanced position, wherein it is locked against the stress of spring, 20, by the tooth, 31 being in engagement with the notch, 30, of the spring-controlled bar, 26, and the trigger-blade, 5, is in the depressed position through  
15 the stress of the spring, 20, which is made to normally tend to rotate the trigger-blade downwardly, and thus maintain the trigger in the forward or firing position. At the same time, the arm, 7, of the slide-plate extends beneath the end, 9, of the (right) sear, while the other  
20 arm, 8, of said plate is in advance of the other (left) sear, as more clearly seen in Fig. 5. If now, the trigger be drawn back, its blade 5, and adjuncts, will be thereby moved upwardly, thus causing the arm, 7, to  
25 raise the end, 9, of the sear and so release the spring-controlled hammer, 12, on that side, to fire the right-barrel. As the trigger-blade, 5, rises, it carries with it the spring-pressed bar, 26, until its free end contacts with the under side of the lug, 27, but the trigger-blade, continuing its upward movement, the tooth, 31, of the  
30 slide-plate is carried up out of engagement with the notch, 30, of said bar; whereupon the said plate is left free to be pressed back by the stress of the spring, 20, to be arrested by a suitable stop, at a point where the arm, 8, of said plate, will, when the trigger is released,  
35 be underneath the end, 10, of the left sear, as seen in Figs. 3, 4, and 6. By now again pulling the trigger, the left barrel will be fired. When the lever, 24, is shifted to unlock the barrels, preparatory to re-charging the same, the projection, 22, of the post, 23, will be  
40 swung from the position of Fig. 6, to that of the dotted lines in Fig. 5, thus impinging against the free arm, 21, of the crank-lever, 13, and so causing the other arm, 14, of the latter to draw forward the rod, 15, and consequently the slide plate, 6, to the position first above  
45 described, that is, as shown in Figs. 1, 2, and 5. As said plate advances its tooth, 31, slides upon the bar, 26, until it engages the notch, 30, of the latter, and thus locks the plate in place.

In order to compel the left or advance arm, 8, to pass  
50 under the end, 10, of the (left) sear, when the trigger is released after having fired the right barrel, and the slide-plate is forced back by the spring, 20, I provide a frame, 32, secured to the trigger-plate (of which frame the before mentioned post 19, is in this instance a part,  
55 for convenience) having a notch, 33, on its under side, with which a pin, 34, on the side of the slide-plate registers when said plate is in the forward position, and which said pin is adapted to enter, when the plate is raised by the act of drawing back the trigger to fire the  
60 first, or right barrel; and when the trigger is released, and the pin, 34, is thereby carried below said notch by the spring, 20, operating to depress the trigger blade, 5 and plate, 6,—it, the pin, will slide along the under side of frame, 32, which side is in a plane that causes  
65 the arm, 8, to travel in a plane below the end, 10, of

the sear, until said pin leaves the frame, 32, when the arm, 8, will be directly beneath the sear. A second notch, 35 in said frame is to permit the pin, 34, to rise when the trigger blade is elevated to fire the second or left barrel.

When the slide-plate is forced back by the spring, 20, after firing the first, or right barrel, as described, the rebound, or recoil, may cause the finger to involuntarily again press the trigger and so fire the other, or left barrel, before the finger can be removed from the  
75 trigger after firing the first barrel. To obviate such liability, I provide means for preventing a too quick rearward movement of the slide-plate. This means, which in this instance is an escapement device, is, as follows:—The said slideplate, 6, is made with a slot to  
80 receive a worm or cylinder, 36, having a cam-groove, 37; which cylinder is mounted on a shaft, 38 that is journaled in suitable bearings of the plate, 6. A stud or pin, 39, that is fastened to the trigger-blade, 5, projects into the said cam-groove. Loosely mounted on  
85 the rear projecting end of the shaft, 38, is a toothed wheel, 40, on the front side of which is pivoted a spring-controlled pawl, 41, that is adapted to engage the teeth of a ratchet-wheel, 42, fixed upon said shaft 38. In  
90 conjunction with the foregoing, is an escapement, consisting of a swinging or pendulum like arm, 43, which is pivoted on and depends from a pin, 44, extending from the plate, 6, and two pallets, 45, carried by said arm, adapted to engage the teeth of wheel, 40. When the  
95 slide-plate is forced back, the cam-cylinder and its shaft will, obviously, be rotated toward the right, Fig. 8, and the pawl, 41, being in engagement with a tooth of the ratchet wheel, 42, the escapement-wheel, 40, will be caused to rotate in the same direction; but this  
100 rotation will be step by step, and so retarded by the escapement, thus retarding the rotation of the cam-cylinder, and consequently the rearward movement of the slide-plate.

In the hereinbefore described construction of the arms, 7, 8, of the slide-plate, the right barrel must be  
105 fired first, after the firing mechanism has been set by the act of breaking down the barrels preparatory to charging the same, and then the left barrel (unless it is desired to use the right barrel only).

In order that either barrel may be used first, or con-  
110 tinuously, instead of having the arms, 7 and 8, fixedly secured to the slide-plate, I make the same rotatable on the latter, whereby they may be shifted so as to be in position to engage, respectively, either one of the  
115 sears when the plate is in the forward or what may be termed the first-firing position. To this end, I form the said arms as a single bar, 46, and mount the same centrally and rotatably on a pin, 47, that is secured to the top of the slide-plate, or rather an expansion, 48  
120 thereof. A coil spring, 49, on said pin, bearing against a head, 50 on the end of the latter and against the top of the bar, 46, tends to press down the bar. The under side of the latter adjacent to the pin, 47 is formed with two opposite cam-faces, 51, and having notches, 52, 53, at their respective ends that are adapted to receive  
125 laterally projecting pins, 54, on the top of the expansion, 48, of the slide-plate; which pins, when in said notches, lock the bar, 46 against rotation. When, however, it is required to shift the said bar, so that the arms, 7, 8, constituted by the ends extending beyond  
130



the plate, 6, may be brought into position to fire the right or the left barrel as may be desired, the bar is rotated and its said cam-faces, riding against the pins, 54, raise the bar against the pressure of the spring, 49, until the notches then moving toward the pins register with the latter and so lock the bar in place. It will of course be understood that the said pins and notches are so related as to stop the bar in two predetermined positions, in one of which,—shown in full lines in Figs. 5 and 6,—the right barrel will be fired first, and in the other,—indicated by dotted lines in said figures,—the left barrel will be fired first.

To provide a convenient means for shifting the bar, 46, that is in effect, the arms, 7 and 8, I employ two arms or horns, 55, that are secured to a pin, 56, that passes through and is rotatable in the top plate, 57, and has a lever, 58, at its outer end for operating the same.

The backwardly turned free end of one of said horns is adapted to engage the forward side of the bar-arm, 7, when the pin, 56 is turned in one direction, and so shift the bar, 46, from the position shown in full lines in Fig. 5, to that indicated by the dotted lines; that is, from the position for engaging the right sear to that of engaging the left sear first. By turning the pin in the opposite direction, the other horn, impinging against the bar-arm, 8, will return the bar to the first-mentioned position.

Although not essential, I usually use a safety device for locking the trigger mechanism against accidental firing of either barrel; the same consisting of a bar or arm, 59, projecting up from the rear end of the slide-plate, 6, and a slidable spring-plate, 60, having two projections, 61, within the frame, adapted to be brought over the free end of the bar, 59, and thus prevent the trigger-blade from rising, whether the parts are in position for firing either barrel.

While I have shown and described one embodiment of my improvement, the same may be considerably modified without departing from the essential principles of the invention. For example, other means equivalent to that described for retarding the backward movement of the slide-plate, caused by the action of the spring, 20, or other suitable spring, may be substituted. Again, it is not essential that the notched bar, 26, for maintaining the slide-plate in the forward position shall be connected to the trigger-blade, and in lieu of the bar with a separate spring to control the same, other means to this end may be used. Also, other means than that shown may be employed for shifting the bar 46 (or arms 7, 8) to either of the two firing positions described. Nor is it essential that the spring, 20, acting upon the slide-plate shall also be adapted to maintain the trigger in position ready for firing, as a separate spring may be employed for that purpose.

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

1. In a single trigger mechanism for double-barrel guns, the combination of the right and left sears and hammers, the pivoted trigger having the blade, the slide-plate mounted on the latter, the laterally extending arms carried by said plate and adapted to engage said sears respectively, the rod pivotally connected to said plate, the arm in which said rod is adapted to slide, the spring mounted on said rod and tending to slide back said plate, means for sliding forward the latter against the stress of said spring into

position for one of said arms to register with one of said sears, and means released by the movement of said trigger, for locking said plate in said position, and a stop for insuring the registry of the other arm of said piece with the other sear when said plate is retracted by the stress of said spring, substantially as set forth.

2. In a single trigger mechanism for double-barrel guns, the combination with the right and left sears and hammers, of the pivoted trigger having the blade, the slide plate mounted on the latter, the arms carried by said plate and adapted to engage said sears respectively, the rod pivoted to said plate, the arm in which said rod is adapted to slide, the spring mounted on said rod and tending to slide back said plate, means for unlocking and locking the barrels, and connections between said means and said plate for bringing the latter into position against the stress of said spring for one of said arms to register with its corresponding sear, when said means for locking and unlocking the barrels is operated to unlock the same, together with means released by the movement of the trigger for maintaining said slide-plate in said position, substantially as set forth.

3. In a single-trigger mechanism for double-barrel guns, the combination with the right and left sears and hammers of the pivoted trigger having the blade, the slide-plate on the latter, the laterally extending arms mounted on said slide-plate and adapted to engage said sears respectively, the bell-crank lever, the rod connecting one arm of said lever and said slide-plate, the spring upon said rod, the rotatable post having the part adapted to engage the other arm of said lever, the lever for actuating said post, whereby said plate is adapted to be brought into position for one of said arms mounted thereon to register with a sear, and means released by the movement of the trigger for locking said plate in said position, substantially as set forth.

4. In a single trigger mechanism for double barrel guns, the combination of the right and left sears and hammers, the pivoted trigger having the blade, the slide-plate mounted on the latter, the arms carried by said plate, one of which is adapted to engage one of said sears and the other the second sear, the spring tending to slide back said plate, means for sliding the latter forward on said trigger blade against the stress of said spring, means released by the movement of the trigger, for locking said slide-plate in the forward position, means for directing the rearward movement of said plate in a plane to cause the second of said arms to pass beneath the corresponding sear when said plate is released by the trigger, and a stop for insuring the registry of the last-mentioned arm with the latter sear, substantially as set forth.

5. In a single trigger mechanism for double barrel guns, the combination of the right and left sears and hammers, the pivoted trigger having the blade, the slide-plate mounted on the latter, the arms carried by said plate, one of which is adapted to engage one of said sears, and the second arm the second sear, the spring tending to retract said plate, means for sliding the latter forward against the stress of said spring, means released by the movement of the trigger, for locking said plate in the forward position, a stop for insuring the registry of the second of said arms with said second sear, together with the escapement device consisting of the rotatable cylinder journaled to said plate having the cam-groove, the fixed pin projecting into said groove, the toothed wheel loosely mounted on the shaft of said cylinder, the pivoted arm having the pallets which engage the teeth of said wheel, and the ratchet wheel fixed on said shaft, and the pawl carried by said toothed wheel, all substantially as and for the purpose set forth.

6. In a single trigger mechanism for double barrel guns, the combination of the right and left sears and hammers, of the pivoted trigger having the blade, the slide-plate mounted on the latter, the spring tending to press back said plate, means for sliding forward the latter against the stress of said spring, the laterally extending arms carried by said plate, one of which arms is adapted to register with one of said sears when the plate is in the forward position, and the other arm to register with the other sear when said plate is in the retracted position, means for



- adjusting said arms to cause either one of the same to register with its corresponding sear when said plate is in the forward position, and the other arm to register with its corresponding sear when said plate is in the retracted position, means released by the movement of said trigger, for locking said plate in the forward position, and a stop for limiting the retraction of said plate, substantially as set forth.
7. In a single trigger mechanism for double barrel guns, the combination of the right and left sears and hammers, of the pivoted trigger having the blade, the slide-plate mounted on the latter, the spring tending to press back said plate, means for sliding forward the latter against the stress of said spring, the laterally extending arms carried by said plate, one of which arms is adapted to register with one of said sears when said plate is in the forward position, and the other arm to register with the other sear when said plate is in the retracted position, the horns to engage the said arms respectively, the pivot-pin on which said horns are carried, means, released by the movement of the trigger, for locking said plate in the forward position, and a stop

for limiting the retraction of said plate, substantially as set forth.

8. In a single trigger mechanism for double barrel guns, the combination of the right and left sears and hammers, of the pivoted trigger having the blade, the slide-plate mounted on the latter, the spring tending to press back said plate, means for sliding forward the latter against the stress of said spring, the bar rotatably mounted on and projecting from the sides of said plate, and adapted to register with said sears respectively, means for rotating said bar whereby either projection thereof may be caused to register with its corresponding sear when said plate is in the retracted position, and means for locking said plate in the forward position substantially as set forth.

In testimony whereof, I have hereunto affixed my signature this 4th day of August, A. D. 1903.

ORSON W. BRENIZER.

Witnesses:

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