

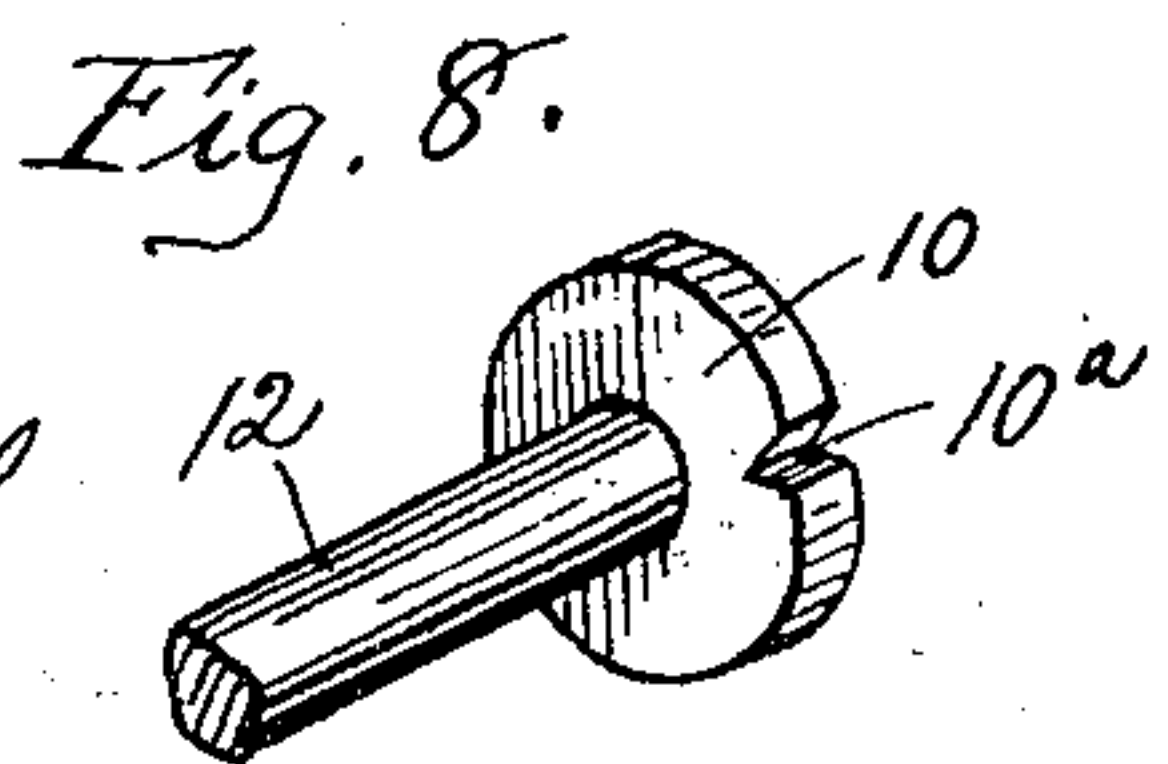
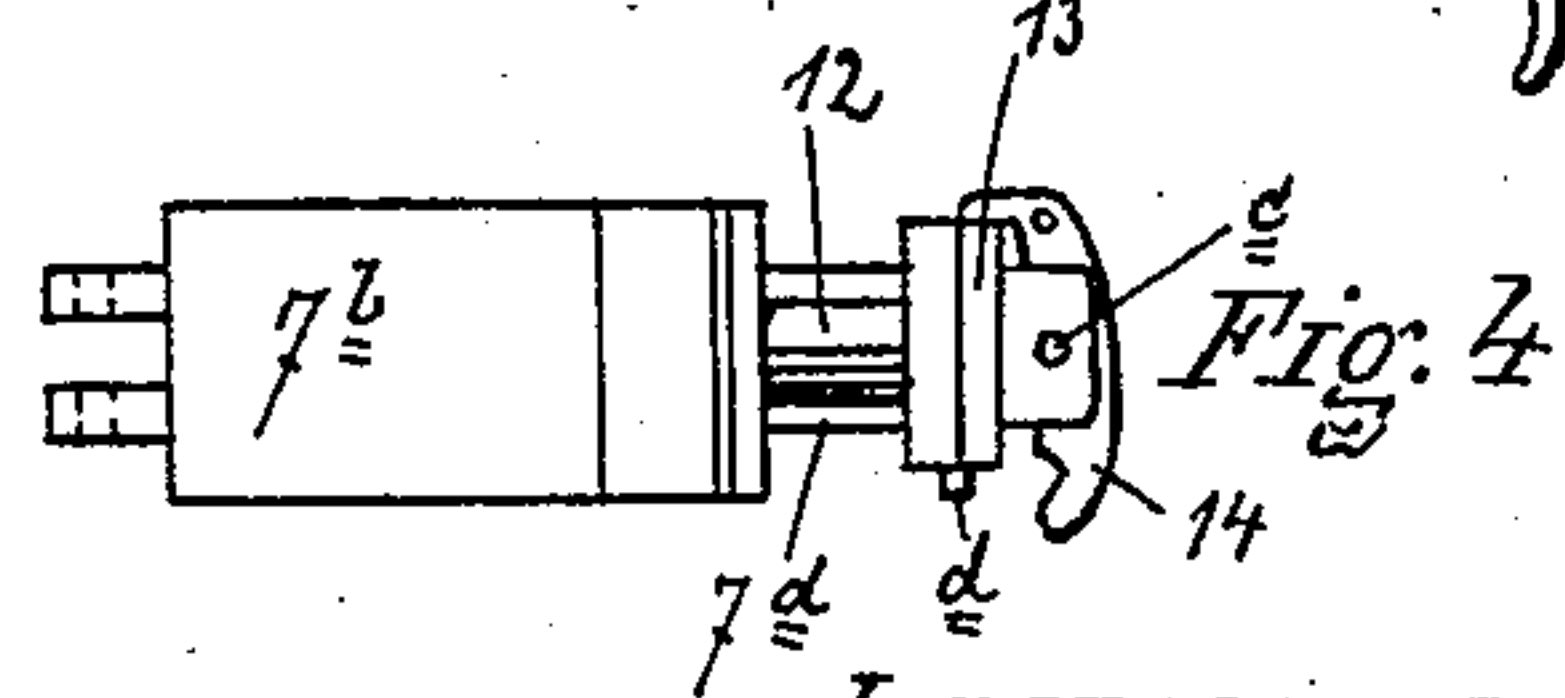
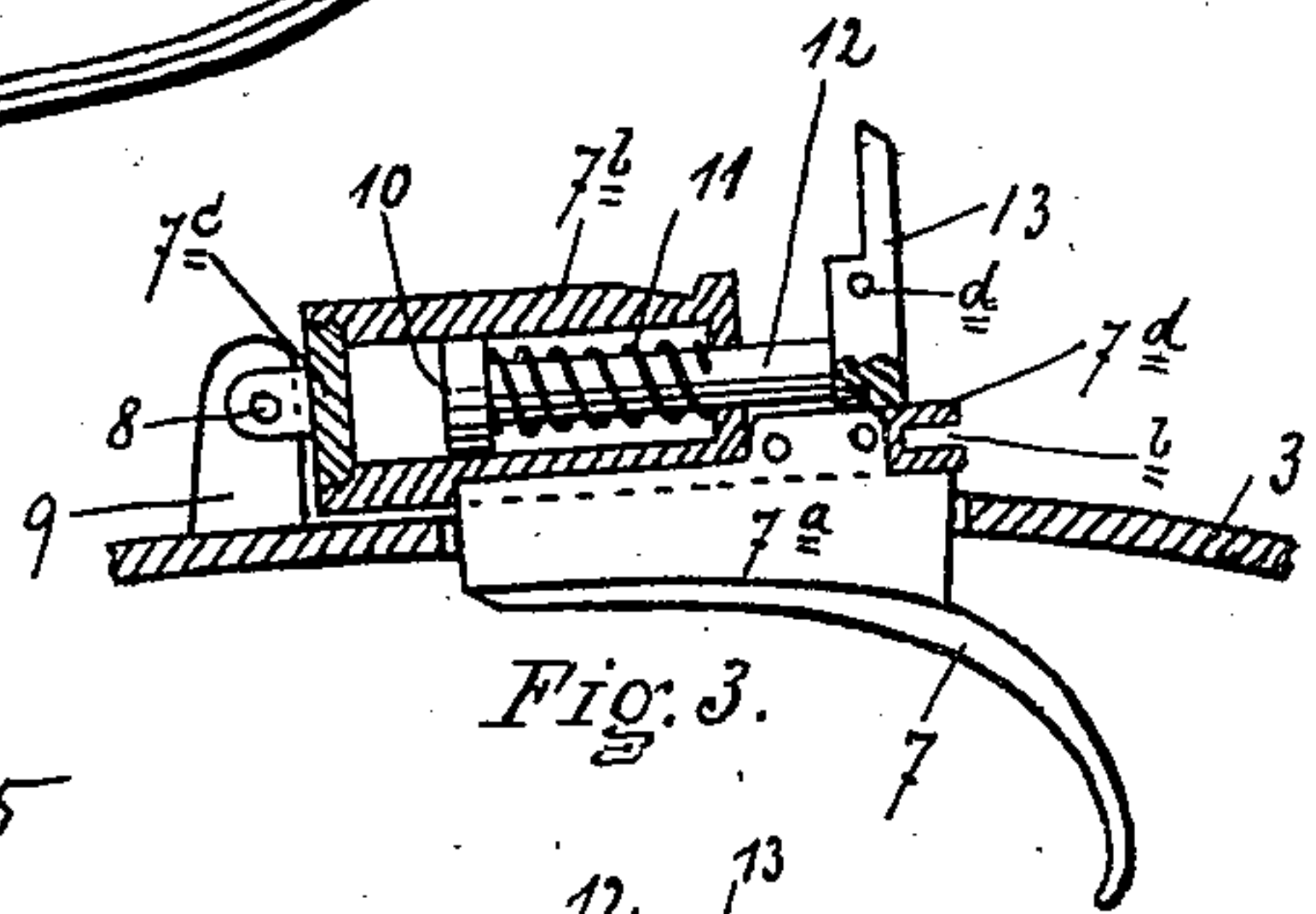
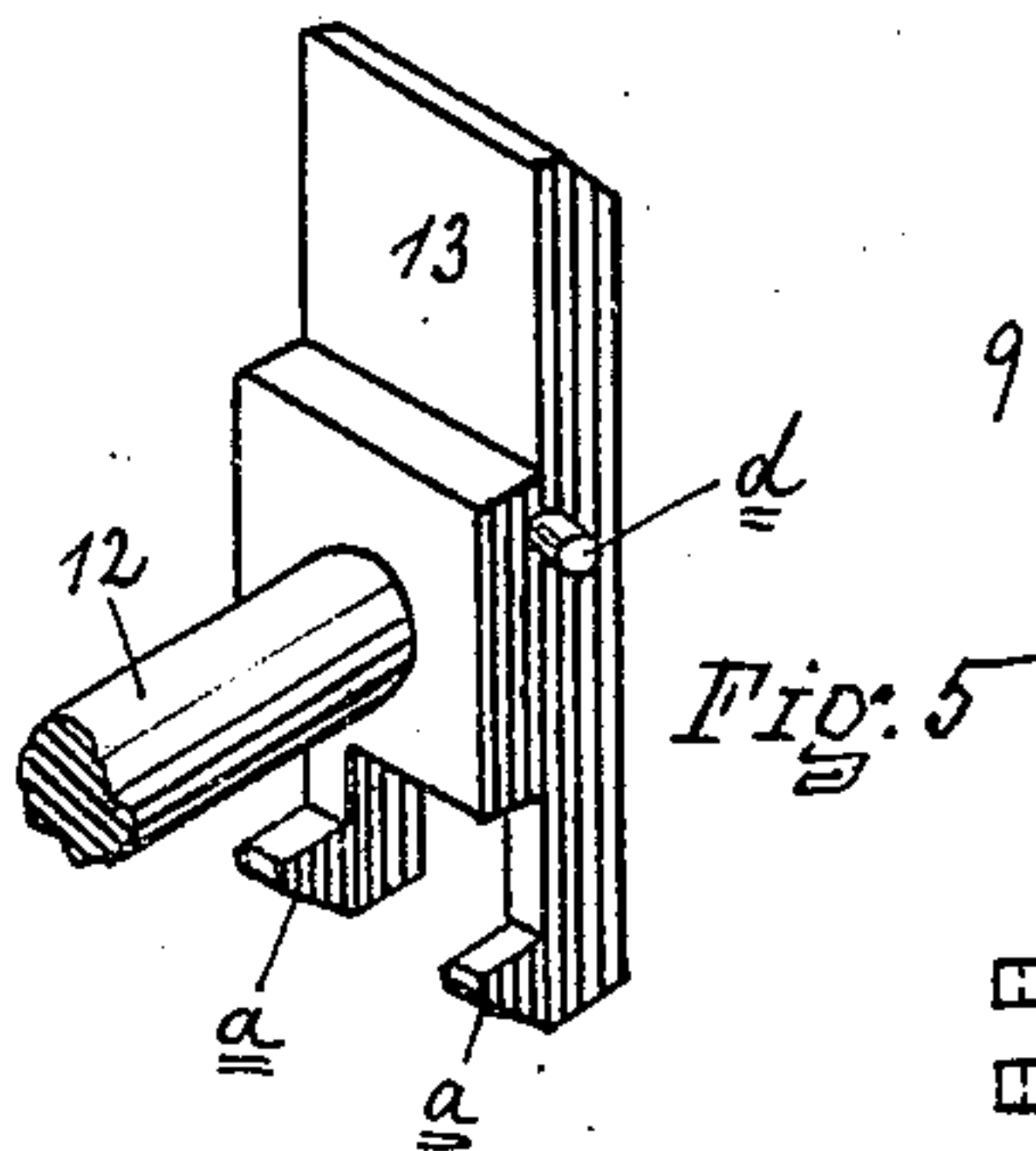
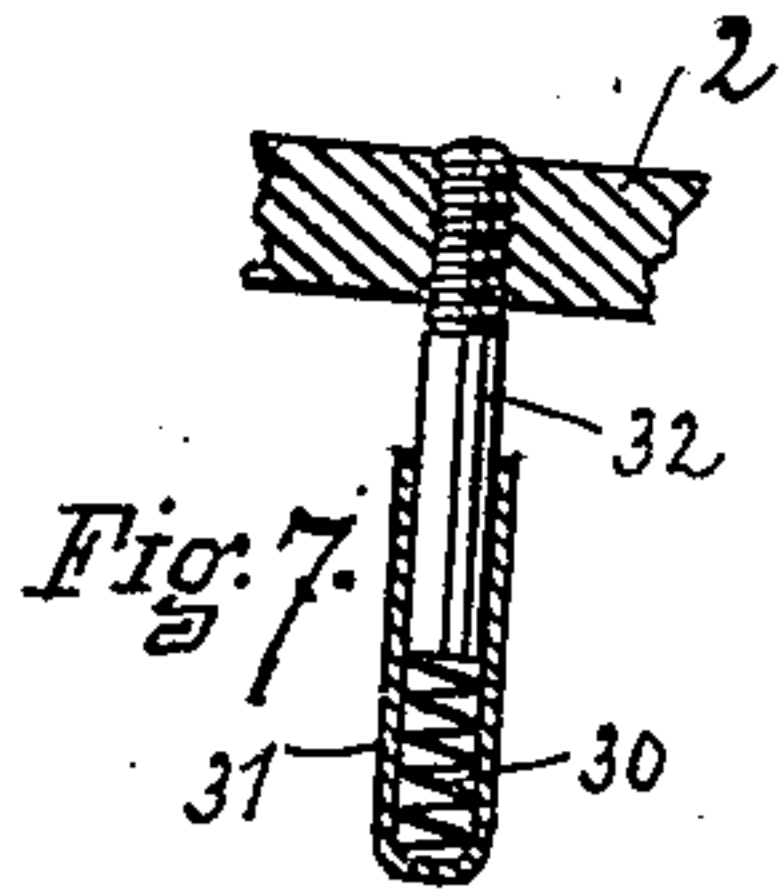
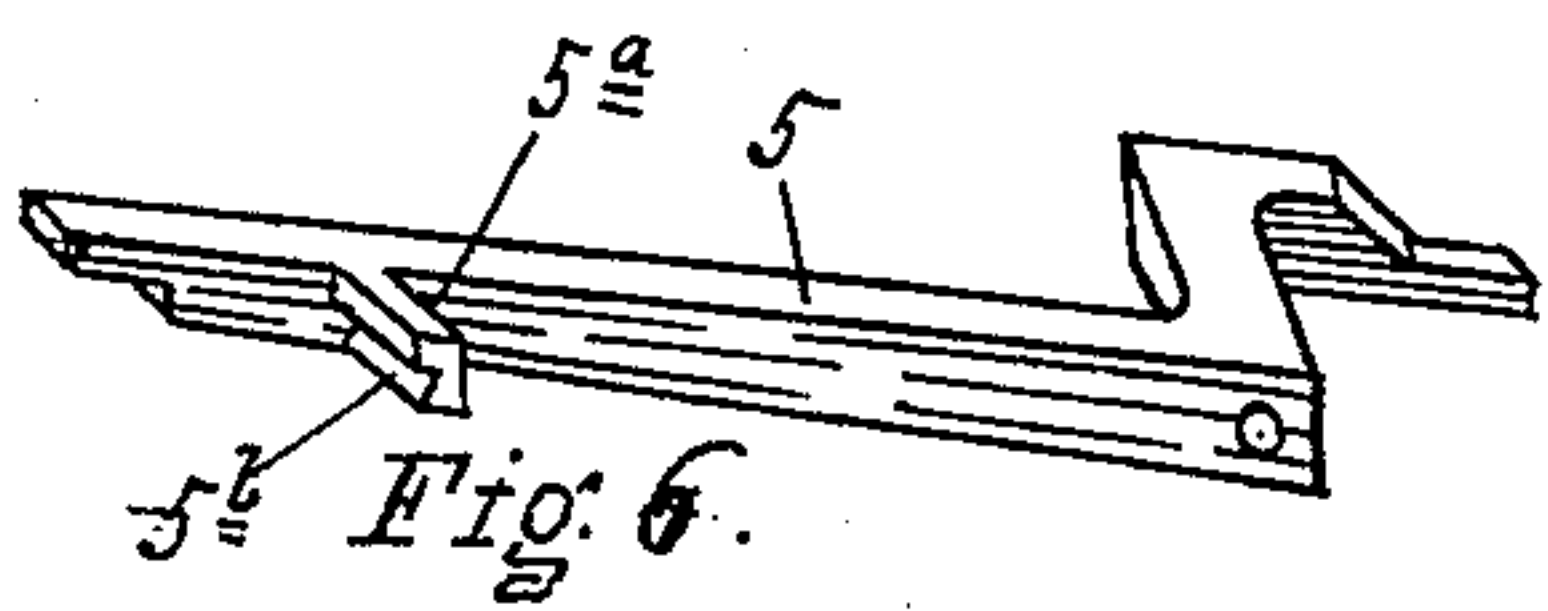
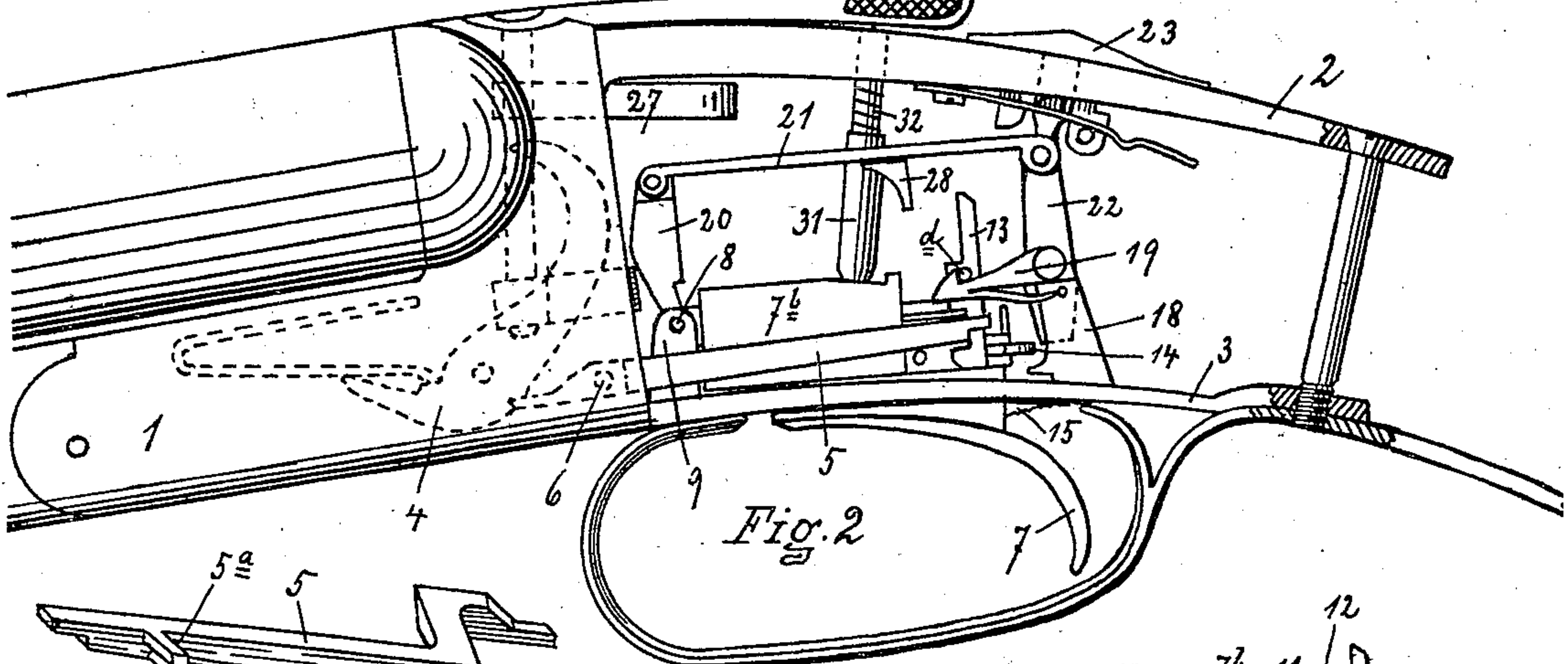
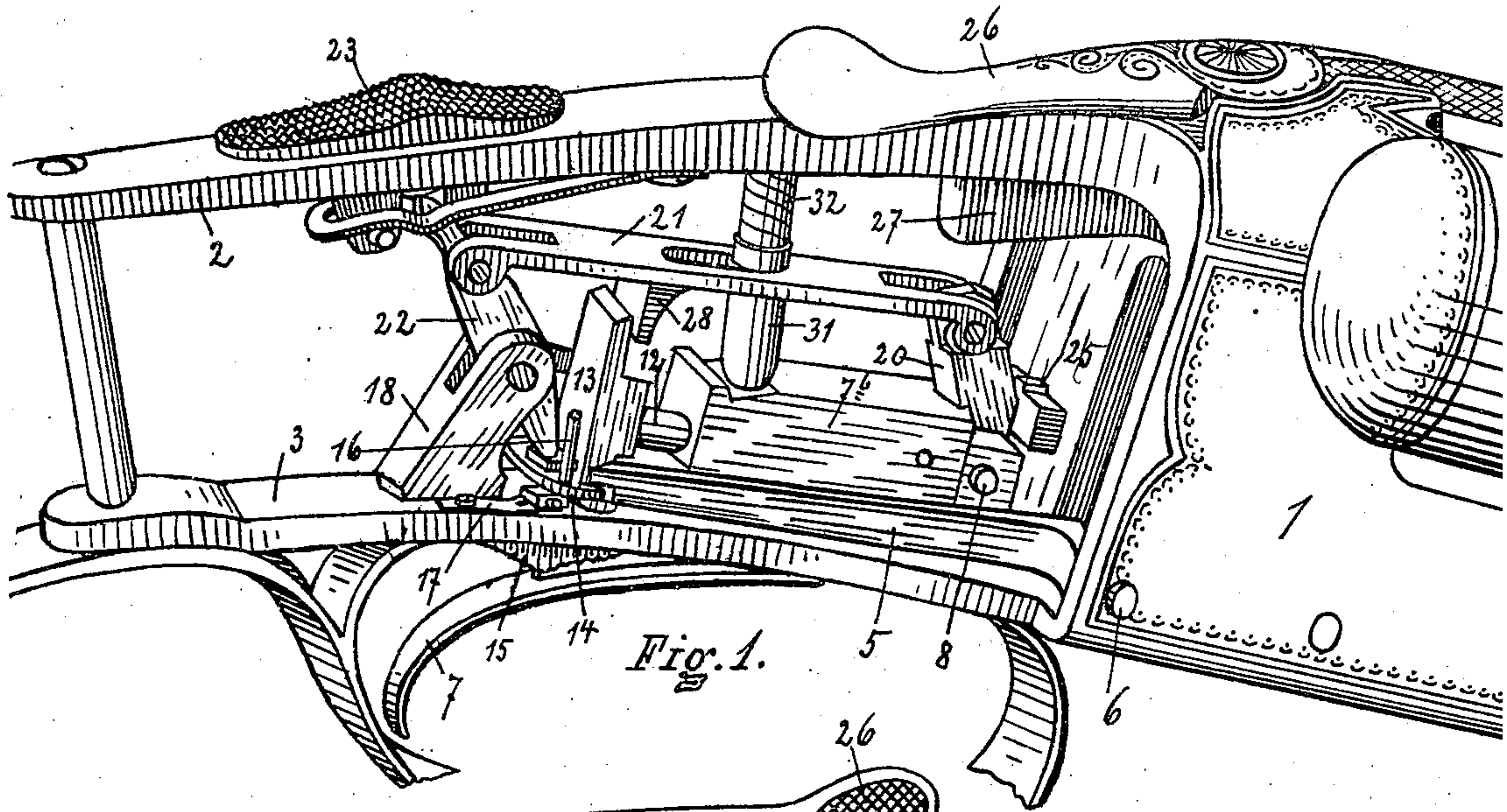
No. 704,025.

Patented July 8, 1902.

E. D. FULFORD.
SINGLE TRIGGER FOR FIREARMS.

(Application filed Aug. 21, 1901.)

(No Model.)



WITNESSES

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SINGLE TRIGGER FOR FIREARMS.

SPECIFICATION forming part of Letters Patent No. 704,025, dated July 8, 1902.

Application filed August 21, 1901. Serial No. 72,735. (No model.)

To all whom it may concern:

Be it known that I, ELIJAH D. FULFORD, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Single Triggers for Firearms; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form part of this specification.

The object of my present invention is to provide a single-trigger mechanism for firearms which is simple in its construction and capable of meeting all the numerous requirements of a practicable and useful single trigger.

In the drawings, Figure 1 shows in perspective the working part of the mechanism, on an enlarged scale, in connection with contiguous proportions of the firearm. Fig. 2 shows a side elevation of substantially the same parts from the opposite side with the parts in a somewhat changed position. Fig. 3 shows detailed partly in section of the trigger and its attached parts. Fig. 4 shows a plan view of the parts shown in Fig. 3. Fig. 5 shows, on an enlarged scale, in perspective a part or detail of the construction. Fig. 6 shows in perspective one of the sears. Fig. 7 shows a spring for depressing the trigger and its supports. Fig. 8 shows, on an enlarged scale, a perspective view of a piston-head and portion of a piston-rod employed in the construction.

Referring to the references and figures in a more particular description, 1 indicates the frame of a double-barrel shotgun of the "breakdown" construction. The frame has the ordinary upper tang 2 and the lower tang or lock-plate 3. Each barrel has a hammer therefor, (shown in dotted outline at 4, and arranged in recesses in frame.) Each hammer has a spring and mechanism for cocking the hammer when the arm is broken down, as is usual in this class of arms. The hammers are secured in cock position by sears 5, which are the same on each side of the arm, except that they are rights and lefts. The sears are pivoted at 6 to the frame.

The single trigger 7 is arranged below the lock-plate in the usual manner of triggers and is provided with a web portion 7^a, passing through a slot in the lock-plate. The internal portion of the trigger consists in the main of a tubular or cylindrical body 7^b, closed at one end by a removable plug 7^c. The head of the plug 7^c provides the pivotal bearing of the trigger on the pivot-pin 8, supported in the post or projection 9 from the lock-plate. The cylinder portion of the trigger receives the piston 10 and spring 11, interposed between the piston and the head of the cylinder and adapted to move the piston and attached parts toward the trigger-pivot. The piston 10 has a small groove 10^a in its edge to afford an air-passage. The piston-rod 12, passing through the head of the cylinder, has secured on its outer end the head-block 13. The lower end of the block 13 is arranged to straddle and ride on the rearward extension 7^d of the trigger and is provided on either side of said extension with catches or hooks *a*, adapted to engage with the inwardly-extending projection 5^a of the sears. On these extensions 5^a the bottom of the projection 5^b acts as a catch-shoulder, and there is also provided midway of the vertical side (see Fig. 6) a second or intermediate catch-shoulder.

On the rear end of the trigger and preferably in a transverse slot or recess *b* is mounted and pivoted at *c* a rocking catch-piece 14. The catch-piece or shifter 14 is adapted to engage with one or the other of the rear ends of the sears, depending on its position of adjustment. For adjusting the position of the catch-piece 14 there is provided on the under side of the lock-plate a sliding thumb-piece 15, carrying an upright pin 16, passing through the opening provided therefor in one end of the catch-piece 14. The catch-piece is free to slide up and down the pin 16 in following the movements of the trigger. A fork friction-spring 17 is provided on the inside of the lock-plate to hold the thumb-slide 15, except when forcibly moved in shifting the position of the catch-piece 14.

Mounted on the post 18, provided on the inside of the lock-plate to the rear of the trigger, is a spring-operated catch 19. This catch

is arranged to be incapable of swinging above the position in which it is shown in Fig. 2. It is adapted to engage with a projection *d* on the head-block 13 and hold it and connected parts in check against the action of spring 11 when the device is set ready for operation.

For resetting the operating parts of the trigger mechanism there is provided a short lever 20, pivoted at its lower end on pivot 8 and having attached at its upper end the connecting-bar 21. The rear end of the bar 21 is pivoted to the rocking lever 22, pivoted on a common pivot with the catch 19 in the upper end of the projection or post 18. As shown, lever 22 also constitutes a safety-catch for the lower end, is adapted to engage with the rear of the trigger, and the upper end is coupled to the external "safety" thumb-slide 23. These two features may be omitted. The lever 20 is engaged and operated by the rear end of the barrel-lock or catch-bar 25, such as usually provided, and which catch-bar is operated by the usual top lever 26. When the trigger safety mechanism, as shown, is employed, the end of the bar 25 is preferably not connected to the lever 20, as these parts are returned to starting position by the operator through the medium of the thumb-piece 23. When the safety mechanism is not employed, the lever 20 is coupled or connected to bar 25 and the parts are retracted with the bar 25 by the action of spring 27. It is obvious that the connection with the bar 25 and the bar 20 may be omitted and a separate spring provided for returning the lever 20 and its connected parts to normal position when the safety mechanism is not employed. On the connecting-bar 21 is provided a shoulder projection 28, adapted to engage with the top of the head-block 13 and reset these parts.

The spring 30, contained in the sliding cap 31, which is mounted on the downwardly-projecting post 32, is provided to force the trigger downwardly.

The arrangement of the hammer and sear is preferably such that when the hammers are down the rear end of the sears will be cammed or thrown up slightly. This is accomplished by making the hammer adjacent to the sear-catch notch rather full.

The operation of the mechanism, so far as it is deemed essential to specify, is substantially as follows: When the top lever 26 is thrown to one side, as indicated in Fig. 1, preparatory to breaking the gun down and changing the load, the catch-bar 25 engages with the lever 20, forcing the connecting-bar 21 toward the rear. The distance that bar 21 moves is multiplied by reason of the class of lever employed. In moving to the rear projection 28 engages with the head-block 13 and draws the piston 10, with its connected parts, toward the rear against the tension of spring 11 and until the parts are caught and held by catch 19. The lever 22 is also by the same operation thrown into the position shown in Fig. 1, where the lower end engages with

the trigger and prevents its operation. When the gun is broken down, the hammers are placed in cocked position.

The catch-plate 14 may be adjusted to engage with the sear of either the right or left hand barrel. As shown in the drawings, it is adjusted to engage with the sear of the right-hand barrel. When the safety-catch is moved to free the trigger, the arm can be fired by pulling the trigger, and, as shown, this operates on the trigger of the right barrel, which causes that barrel to be fired. At the same time that the trigger is moved up in this operation the projection *d* on the head 13 is moved above the range of the catch 19, and this releases the head and connected parts, including the catches *a*, which were held by catch 19 in a primarily-disconnected position. Under influence of spring 11 these parts are moved toward the front of the gun when released from catch 19. This movement is controlled and retarded by the air-pressure on the piston 10 in the cylinder. In case of the involuntary pull on the trigger which usually accompanies or immediately follows the firing of the first barrel it takes place during the short interval of time that the head 13 and accompanying parts are making the movement last described. The speed of the movement can be regulated by the tension of the spring and the fit of the piston in the cylinder, as well as by the size of the air-passage 10^a in the piston. At the completion of the forward movement of the head 13 the hooks *a* come into engagement with the under side of the projection 5^a of the sear, or, more strictly speaking, in contact with the projection of the sear which has not been previously operated. This connects the trigger to the unoperated sear, and the next voluntary pull of the trigger is communicated to this sear. In case the trigger fails to become entirely depressed before engaging with the projection 5^a the hook *a* may find an engagement with the intermediate shoulder on this projection, and the range of movement of the trigger is sufficient to operate the sear substantially as though the better hold on the lower side of the projection is had. The rear of the sear being cammed up, as before mentioned, by the hammer when down, in operating the second sear the first-operated sear is out of range of movement of the trigger mechanism, so that no more force is required to operate the second sear than is required in operating the first.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a single-trigger mechanism the combination of sears each having two points of engagement as between the sears and triggers, a trigger, an adjustable catch-piece on the trigger arranged to engage with one or the other of the sears at the first point of engagement, a movable catch arranged to engage with the second points of engagement of both sears, means for moving said catch and means

for holding the same in check and releasing upon the first movement of the trigger substantially as set forth.

2. The combination in a single-trigger mechanism of the sears, the trigger having an adjustable catch-piece adapted to engage with one only at a time of the sears, a cylinder mounted on said trigger, a piston and spring in the cylinder, a movable catch attached to said piston and adapted to engage with the sears, means for moving said catches and piston, means for securing and releasing said catches upon the first movement of said trigger and means for resetting the parts substantially as set forth.

3. In a single-trigger mechanism, the combination of two sears, a trigger, a shifter-catch and a movable catch both mounted on the trigger and adapted to engage with the sears, means for adjusting the shifter-catch, an air-cushion for retarding the movement of and means for securing, releasing and resetting the movable catch, substantially as set forth.

4. In a single-trigger mechanism the combination with the frame-hammers and sears of a single trigger, having a cylinder, piston and operating-spring therefor mounted thereon, a movable catch connected with said piston for operating on the sears an adjustable catch also mounted on the trigger for engaging with the sears, a catch for securing the

movable catch and parts in check and a resetting device substantially as set forth.

5. The combination with the sears and hammer of a firearm of a single trigger, having a cylinder-body and piston arranged therein, a movable sear-catch connected with said piston, a catch for securing said parts in retracted position and a resetting mechanism consisting of a multiplying lever adapted to be engaged by the catch-bar of the firearm, the connecting-bar and the shoulder-piece adapted to engage with movable catch mechanism substantially as set forth.

6. The combination in a single-trigger mechanism of the trigger and sears, a movable, primarily-disconnected catch between the trigger and sears, means for moving said catch into locking engagement with the sears, means for securing and for releasing said catch upon the first operation of the trigger and a cylinder and piston connected with said catch for retarding by an air cushion or pressure the movement of said catch, substantially as set forth.

In witness whereof I have affixed my signature, in presence of two witnesses, this 19th day of August, 1901.

ELIJAH D. FULFORD.

Witnesses:

E. WILLARD JONES,
W. N. BARDIN.