

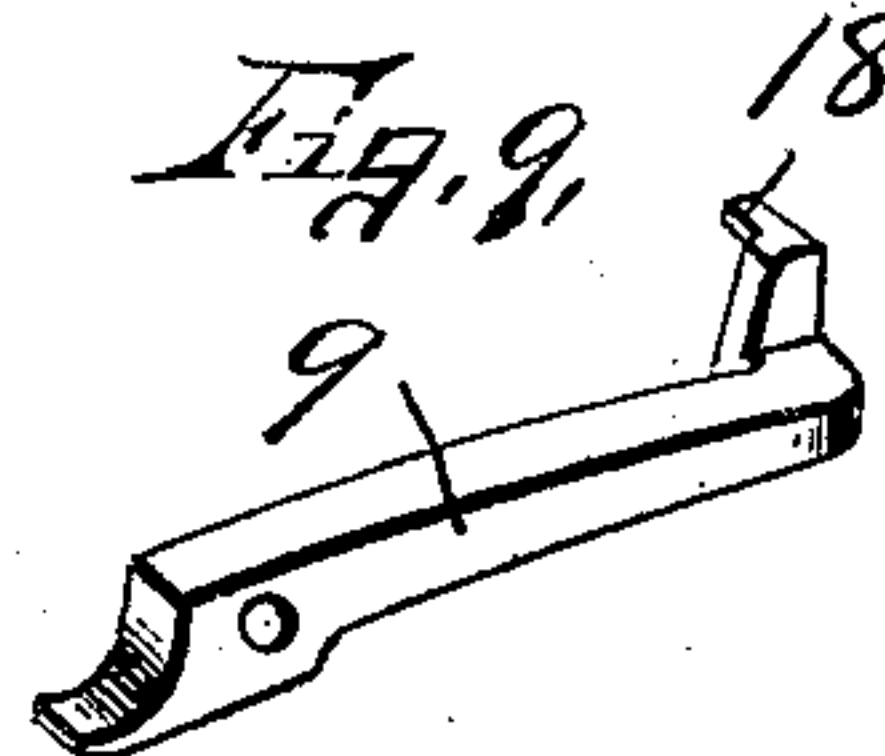
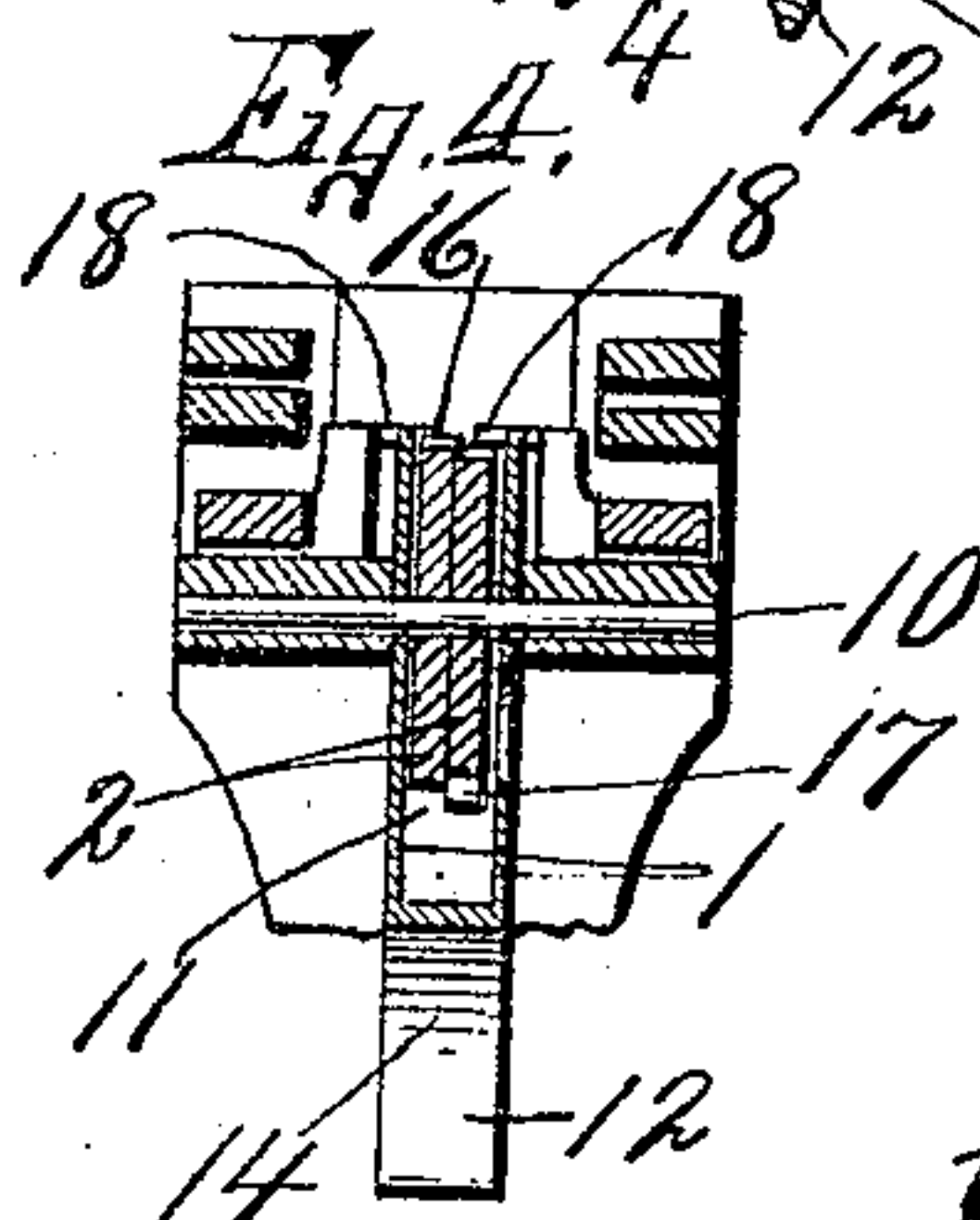
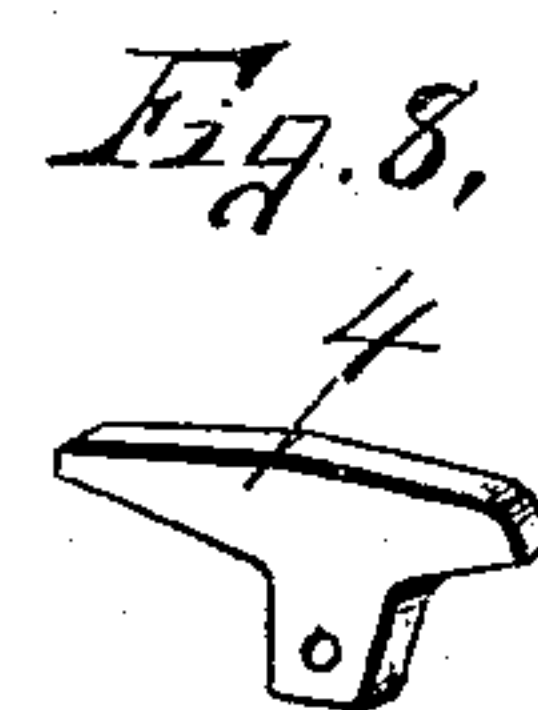
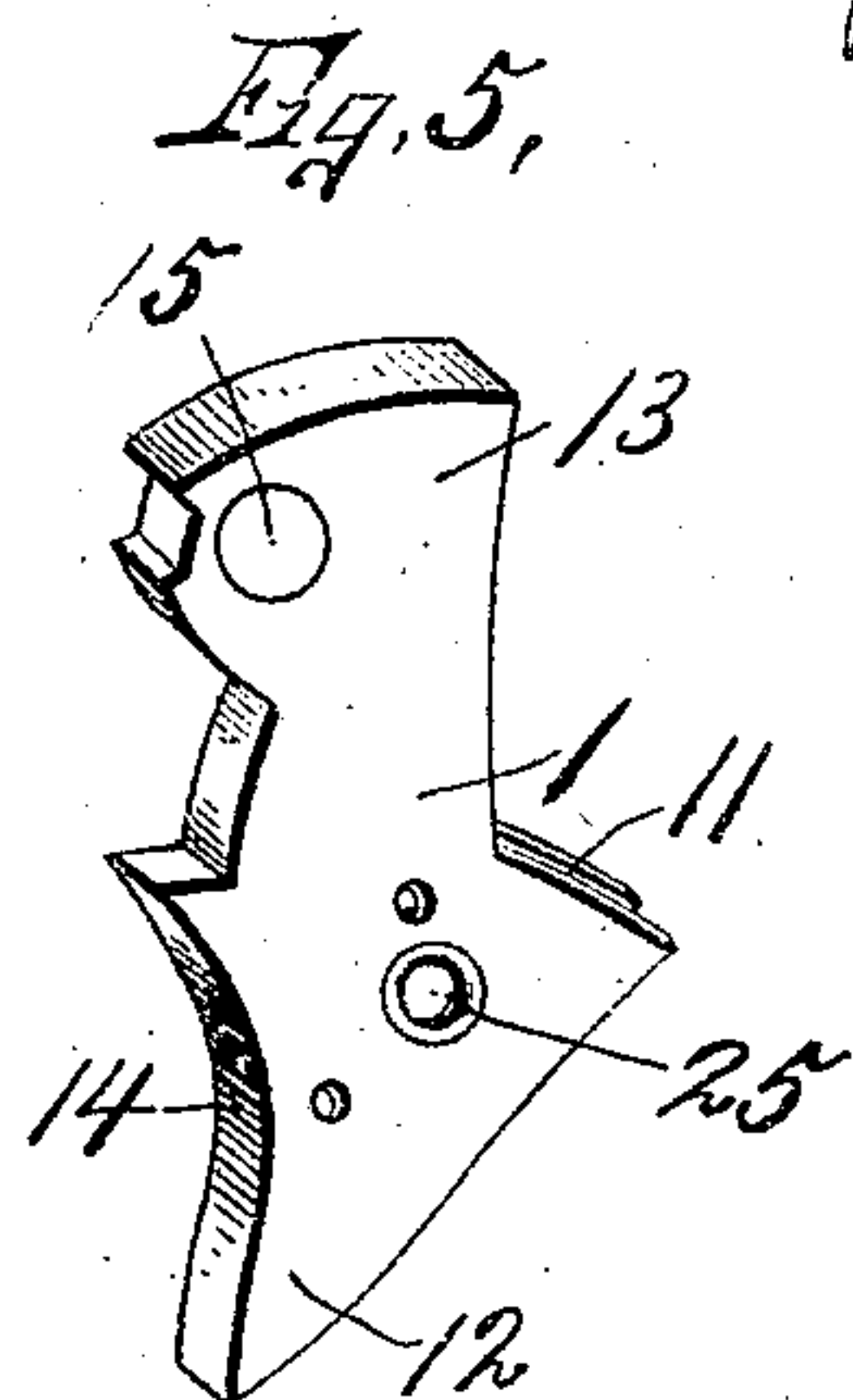
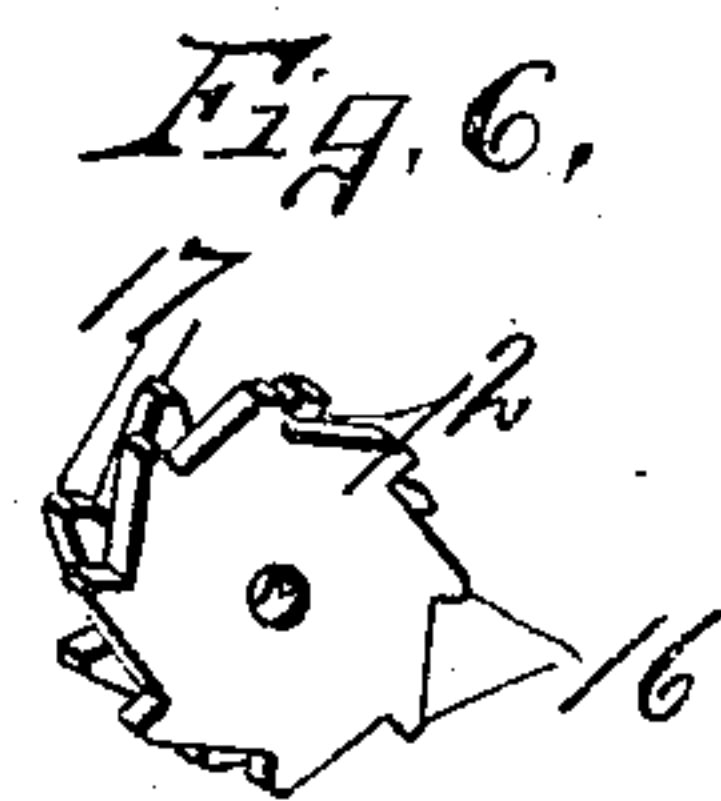
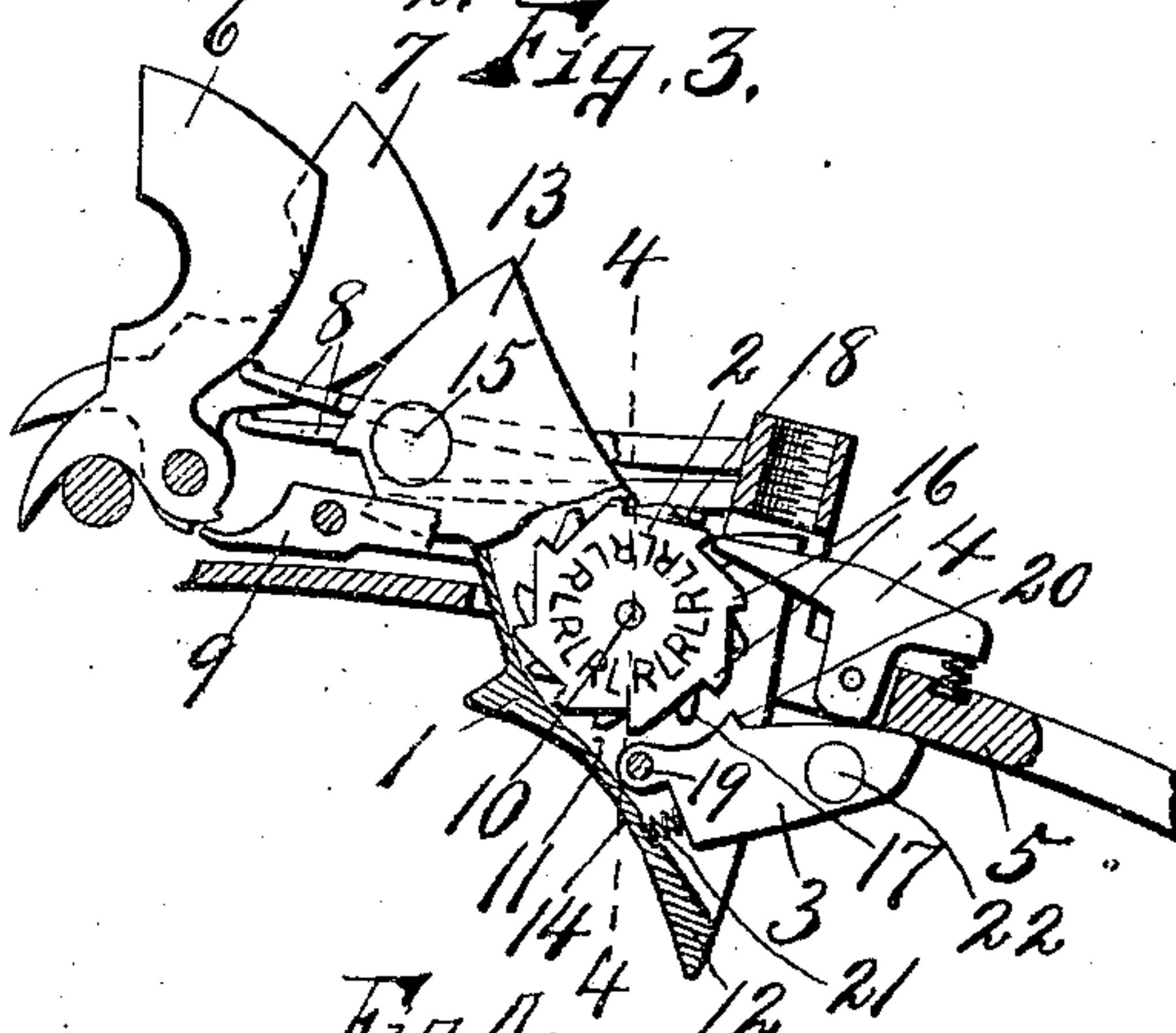
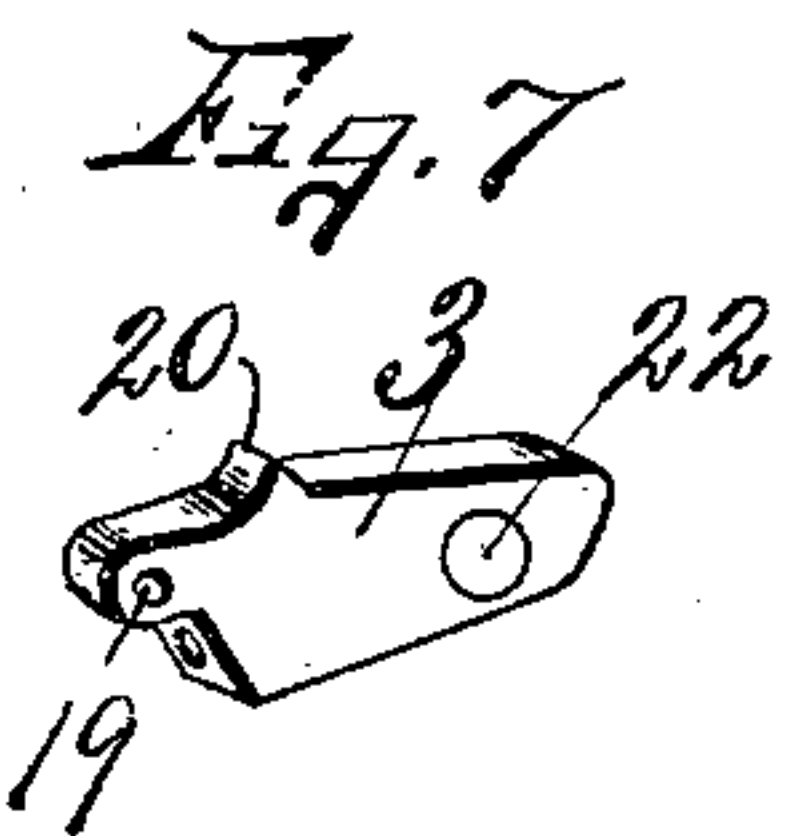
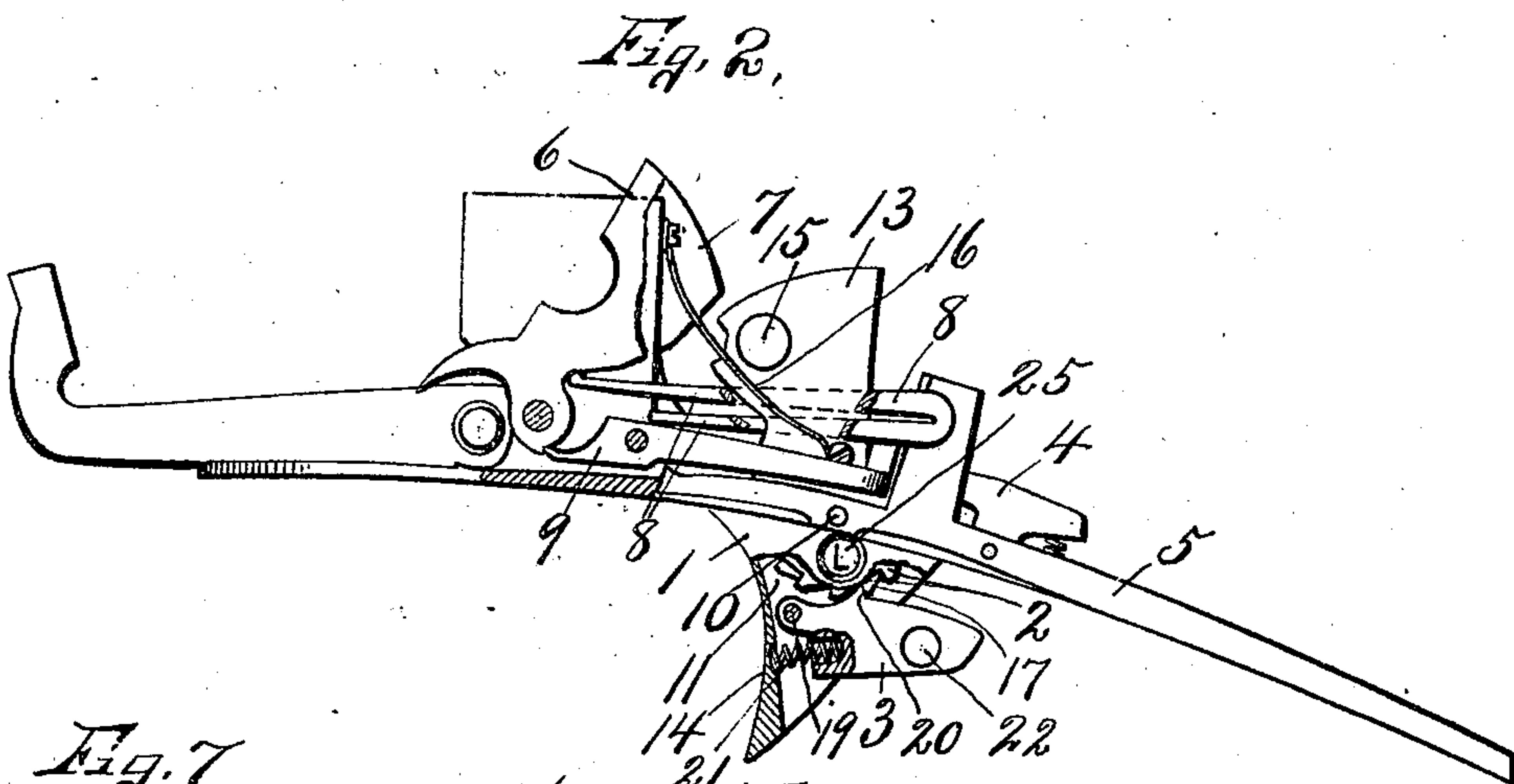
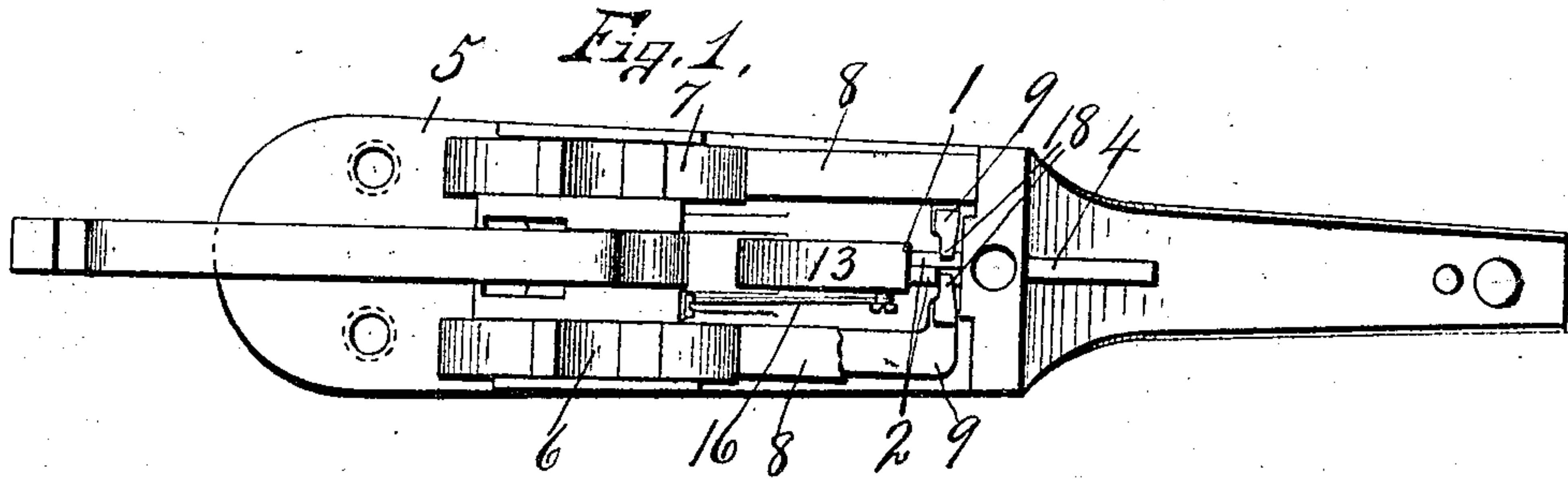
No. 715,490.

Patented Dec. 9, 1902.

C. F. LEFEVER.  
SINGLE TRIGGER MECHANISM FOR FIREARMS.

(Application filed Feb. 28, 1902.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES F. LEFEVER, OF SYRACUSE, NEW YORK.

## SINGLE-TRIGGER MECHANISM FOR FIREARMS.

SPECIFICATION forming part of Letters Patent No. 715,490, dated December 9, 1902.

Application filed February 28, 1902. Serial No. 96,113. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. LEFEVER, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and  
5 useful Improvements in Single-Trigger Mechanism for Firearms, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

10 This invention relates to improvements in firearms, and refers more particularly to double-barrel guns in which the hammers or firing is controlled by a single-trigger mechanism.

15 The primary object of this invention is to prevent the accidental or premature discharge due to the involuntary recoil upon the firing of the gun.

20 A more specific object is to mount the trigger in such manner that it is involuntarily thrown out of action or rather out of connection with the sear-tripping mechanism by the recoil of the gun upon its discharge.

25 Another object is to mount the pawl which operates the sear-tripping members in such manner that the recoil of the gun upon its discharge also automatically acts to throw said pawl temporarily out of action during said recoil, thereby doubly insuring the gun  
30 from the simultaneous discharge of both barrels or the accidental discharge of one barrel immediately after the other due to the involuntary recoil.

35 A still further object is to mount the trigger and the rotary sear-tripping device upon the same axis for the purpose of condensing the mechanisms into as small a space as possible and also for the purpose of increasing the efficiency of action of the counterbalance  
40 trigger and pawl mounted thereon as effected by the recoil; and another object is to provide a rotary sear-tripping device with a series of characters cooperating with a suitable sight-opening in the trigger whereby the position of the hammers may be readily ascertained.  
45

Referring to the drawings, Figure 1 is a top plan view of the detached trigger-plate, showing the spring-actuated hammers, sears,  
50 and single-trigger mechanism for controlling the operation of the hammers. Fig. 2 is a side elevation, partly broken away, of the

parts seen in Fig. 1, the hammers being shown in their cocked position and the trigger as shown in its normal position. Fig. 3  
55 is a view similar to Fig. 2, showing one of the hammers and the trigger mechanism in its fired position. Fig. 4 is a sectional view taken on line 4-4, Fig. 3. Figs. 5, 6, 7, and 8  
60 are perspective views respectively of the detached trigger, the ratchet or sear tripping device, the pawl for actuating said device step by step, and the stop-pawl for preventing retrograde movement of the ratchet. Fig.  
65 9 is a perspective view of one of the detached hammer-sears.

Similar reference characters indicate corresponding parts in all the views.

I am aware that single-trigger mechanisms have been used; but it is found that unless  
70 some provision is made for preventing the re-engagement of the trigger mechanism with the sear-tripping device during the recoil of the gun upon the discharge of one barrel the other barrel is liable to be discharged acci-  
75 dentally by the reaction from the recoil. To illustrate, immediately after the discharge of one of the barrels of the gun with the finger upon the trigger the recoil of the gun instantly releases the finger-pressure upon the  
80 trigger, thereby enabling said trigger to return to its operative position for releasing the sear which controls the hammer for the other barrel, and the reaction which takes place immediately after the recoil in the opposite  
85 direction from the recoil produces an involuntary pull upon the trigger which causes the accidental discharge of the other barrel. It is this difficulty which I have sought to  
90 overcome by utilizing the recoil to force and to hold the trigger to its inoperative position.

In carrying out the objects of my invention I preferably provide a single trigger 1, a sear-tripping device 2, a pawl 3 for actuating the device 2, and a stop pawl or detent 4 for pre-  
95 venting the retrograde movement of the device 2. These parts constituting the essential elements of the single-trigger mechanism are mounted upon a suitable part of the gun, as a trigger-plate 5. I also mount upon this  
100 trigger-plate hammers 6 and 7, springs 8 for actuating the hammers, and sears 9 for controlling the operation of the hammers 6 and 7.

The hammers 6 and 7, springs 8, and sears



9 may be of any desired form, size, or construction adapted to be operated with my single-trigger mechanism.

The trigger 1 and sear-tripping device 2 are preferably mounted upon a common axis, as a spindle or pivotal bearing 10, the trigger 1 being provided with a recess 11 to receive the device 2 and is preferably provided with lower and upper extensions 12 and 13, the lower extension projecting beneath the lower face of the trigger-plate and is provided with a finger-engaging face 14, and the upper extension 13 is counterbalanced in such manner as to normally tilt forwardly and downwardly by its own gravity. In order to effect this forward and downward movement of the upper end of the trigger, I preferably provide the same with a counterbalance 15, which is secured to the trigger in a plane above and forward of the pivot 10. This trigger is held in its operative position against the action of the counterbalance by suitable means, as a light spring 16, which is of sufficient tension to return the trigger to its operative position after each firing movement.

The sear-operating device 2 preferably consists of a ratchet-wheel having separate sets of peripheral teeth 16 and 17, the teeth of one set being arranged opposite the spaces between the teeth of the other set, so that successive teeth are alternately presented to actuate their respective sears.

The sear for each hammer is provided with a lateral projection 18, which is normally disposed in the path of the forwardly-moving teeth of each set, so that as the trigger is successively operated in the act of firing the gun first one sear is actuated and then the other to release their respective hammers.

The pawl 3 for operating the ratchet device 2 is pivoted at its forward end at 19 to the trigger and preferably in a plane beneath the sear-tripping device 2 and extends rearwardly from the pivot 19. The upper edge or face of said pawl is provided with a shoulder 20 for engaging the teeth 16 and 17 as they are successively presented to said shoulder by the successive movement of the trigger to its firing position.

In order to insure the positive release of the pawl 3 when the sear-tripping mechanism or device 2 has been moved the distance of one tooth, the rear end of said pawl is adapted to engage the lower face of the trigger-plate 5 as the trigger approaches the limit of movement to its firing position. This pawl 3 is also arranged in the recess 11 and is forced to its operative position in engagement with the teeth of the sear-tripping device 2 by a suitable spring 21, which is interposed between said pawl and the adjacent wall of the recess 11. In order to further reduce the liability of the accidental or premature discharge of the gun by the recoil incidental to the discharge of one barrel, I provide the pawl 3 with a counterbalance 22, which is arranged

at the rear of the pivot 19; but it is evident that this counterbalance may be effected by the mere additional weight of the metal suspended from the pivot 19 and counteracting the tension of the spring 21, but not with sufficient force or weight to prevent engagement of the shoulder 20 with the teeth 16 and 17 when the trigger returns to its normal position.

It is evident from the foregoing description that three causes operate to prevent the accidental or premature discharge of the gun—first, the counterbalance or overhanging of the upper portion of the trigger in a plane above and forward of the pivot 10; second, the fact that the rear end of the pawl 3 is positively forced out of engagement with the teeth of the sear-tripping device 2 when the trigger is pulled to its firing position, and, third, the counterbalancing effect of the pawl 3, suspended from the pivot 19.

The operation of my invention is as follows: When the trigger is drawn to the position seen in Fig. 3, said trigger is counterbalanced forward of its pivot by the superior weight of the upper end or extension of said trigger, and in this position the pawl 3 is depressed to disengage the shoulder 20 from the sear-tripping device 2, thereby leaving a free trigger, this being the firing position of said trigger. Immediately upon the discharge of one of the barrels effected by the rear movement of the trigger a recoil takes place which forces the gun rearwardly, it being understood that the operator has a firm grip upon the trigger. During this recoil the grip or pull of the operator upon the trigger is momentarily released, and at the same time the momentum of the recoil tends to force the upper end of the trigger forwardly and downwardly, thereby forcing the rear end of the pawl against the lower face of the trigger-plate and holding the tooth 20 out of the path of the teeth of the sear-tripping device 2. At the same instant that the recoil effects the forward movement of the upper end of the trigger 1 it also produces a similar effect in the opposite direction upon the pawl 3, thereby further preventing any connection between the trigger and sear-operating device. Immediately and instantly after the recoil the reaction or involuntary forward movement of the gun is produced, and it might be stated here that it is at this precise period when the accidental or premature discharge of the gun would take place were it not for the provision to obviate this effect as just described. As this reactionary movement is produced the finger of the operator is engaged with the trigger, and owing to the fact that the trigger and pawl have been previously forced out of action by the recoil and that considerable movement of the trigger is required before the shoulder 20 can be again brought into engagement with the teeth of the sear-operating device it is apparent that the accidental or premature discharge



of the other barrel is absolutely prevented and that the action of the trigger is always under control of the operator.

The stop pawl or detent 4 is preferably pivoted to the trigger-plate 5 at the rear of the sear-tripping device 2 and is yieldingly held in engagement with the teeth of said device by a suitable spring 25, whereby the device 2 may be readily rotated in one direction for alternately actuating the sears to release their respective hammers and is prevented from movement in the opposite direction.

In order that the operator may readily ascertain the position of the hammers without breaking the gun, I preferably provide the end face of the rotary sear-tripping device 2 with a series of characters, as "R L," which are alternately arranged and correspond to the sear-tripping teeth of both sets, the trigger being formed with a single sight-opening 25, which is beneath the trigger-plate 5 and always in sight, so that if, for instance, the left barrel is fired the letter "R" next appears at the sight-opening 25 and indicates that the right barrel is still to be discharged.

The operation of my invention will now be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be noted that the forms and arrangement of the trigger, sear-tripping device, and the pawls 3 and 4 may be modified without departing from the spirit of this invention. Therefore I do not limit myself to the precise construction and arrangement shown and described.

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

1. In a gun, a plurality of spring-actuated hammers and sears therefor, a trigger and means actuated thereby to trip the sears alternately, and means actuated by the recoil of the gun to disconnect the trigger from the former means.

2. In a gun, a plurality of spring-actuated hammers and sears therefor, a trigger and means actuated thereby to trip the sears alternately, and means acting on the trigger and operated by the recoil of the gun to disconnect the trigger from the former means.

3. In a gun, a plurality of spring-actuated hammers and sears therefor, revoluble members operating to trip the sears alternately, a trigger, means actuated by the trigger to rotate said members step by step, and means actuated by the recoil of the gun to force the former means out of action during said recoil.

4. In a gun, a plurality of spring-actuated hammers and sears therefor, a pivoted trigger counterbalanced to normally swing to its fired position, and mechanism actuated by the firing movement of the trigger to alternately trip the sears.

5. In a gun, a plurality of spring-actuated hammers and sears therefor, rotatable members arranged to trip the sears alternately,

and a trigger counterbalanced to normally swing to its fired position, and means actuated by the trigger to move the members step by step.

6. In combination with the spring-actuated hammers and sears of a gun, revoluble members adapted to trip the sears alternately at each successive movement, a trigger having a pawl acting to engage and move the revoluble members as the trigger is successively pulled, said trigger having an independent movement caused by its inertia and the recoil of the gun and means engaging and disconnecting the pawl from the members during such independent movement of the trigger.

7. In a gun the combination with spring-actuated hammers and sears therefor, of a rotary sear-tripping device and a pivoted trigger both having a common axis of movement, and means to transmit motion from the trigger to said device.

8. In a gun the combination with spring-actuated hammers and sears therefor, a pivoted trigger having its upper end overbalancing its lower end in a direction opposite to the recoil, a pawl on the trigger beneath the pivot, and means actuated by the pawl to trip the sears alternately at each pull on the trigger, and means for forcing said pawl out of action as the trigger is moved to the firing position.

9. In a gun, the combination with spring-actuated hammers and sears therefor, a pivoted trigger, a rotary device mounted on the pivot and movable independently of the trigger to alternately trip the sears, a pivoted pawl on the trigger to rotate the device by step, said trigger and pawl extending in opposite directions from their pivots and means to throw the pawl out of action as the trigger is moved to the firing position.

10. In a gun, a plurality of spring-actuated hammers and sears therefor, revoluble members operating to trip the sears alternately, a trigger, a pawl on the trigger to engage and move the members step by step, and means to throw the pawl out of action as the trigger is moved to the firing position.

11. In a gun, a plurality of spring-actuated hammers and sears therefor, in combination with a pivoted trigger and rotary members mounted on a common axis, said members operating to trip the sears alternately, and means on the trigger to rotate said members step by step as the trigger is successively pulled.

12. In combination with the spring-actuated hammers and sears of a gun, a rotary part having a separate set of sear-tripping teeth for each sear, the teeth of one set being opposite the spaces in the other set, a pivoted trigger having the same axis as said part, and a pawl pivoted to the trigger and actuated thereby to rotate the rotary part step by step and to be forced out of action by the recoil of the gun and means to throw the pawl



out of action as the trigger is moved to the firing position.

13. In combination with the spring-actuated hammers and sears of a gun, a pivoted trigger having a sight-opening, a rotary sear-tripping device having characters successively presented to said opening, and means on the trigger to rotate said device step by step at each successive pull of the trigger.

14. In combination with the spring-actuated hammers and sears of a gun, a pivoted trigger having a recess and a sight-opening in one of its walls, a rotary sear-tripping de-

vice mounted in the recess upon the trigger-pivot, and provided with characters successively presented to the opening to indicate the position of the sear-tripping device, and a pawl pivoted to the trigger and rotating said device at each successive pull of the trigger.

In witness whereof I have hereunto set my hand this 22d day of February, 1902.

CHARLES F. LEFEVER.

Witnesses:

H. E. CHASE,

HOWARD P. DENISON.