

No. 854,557.

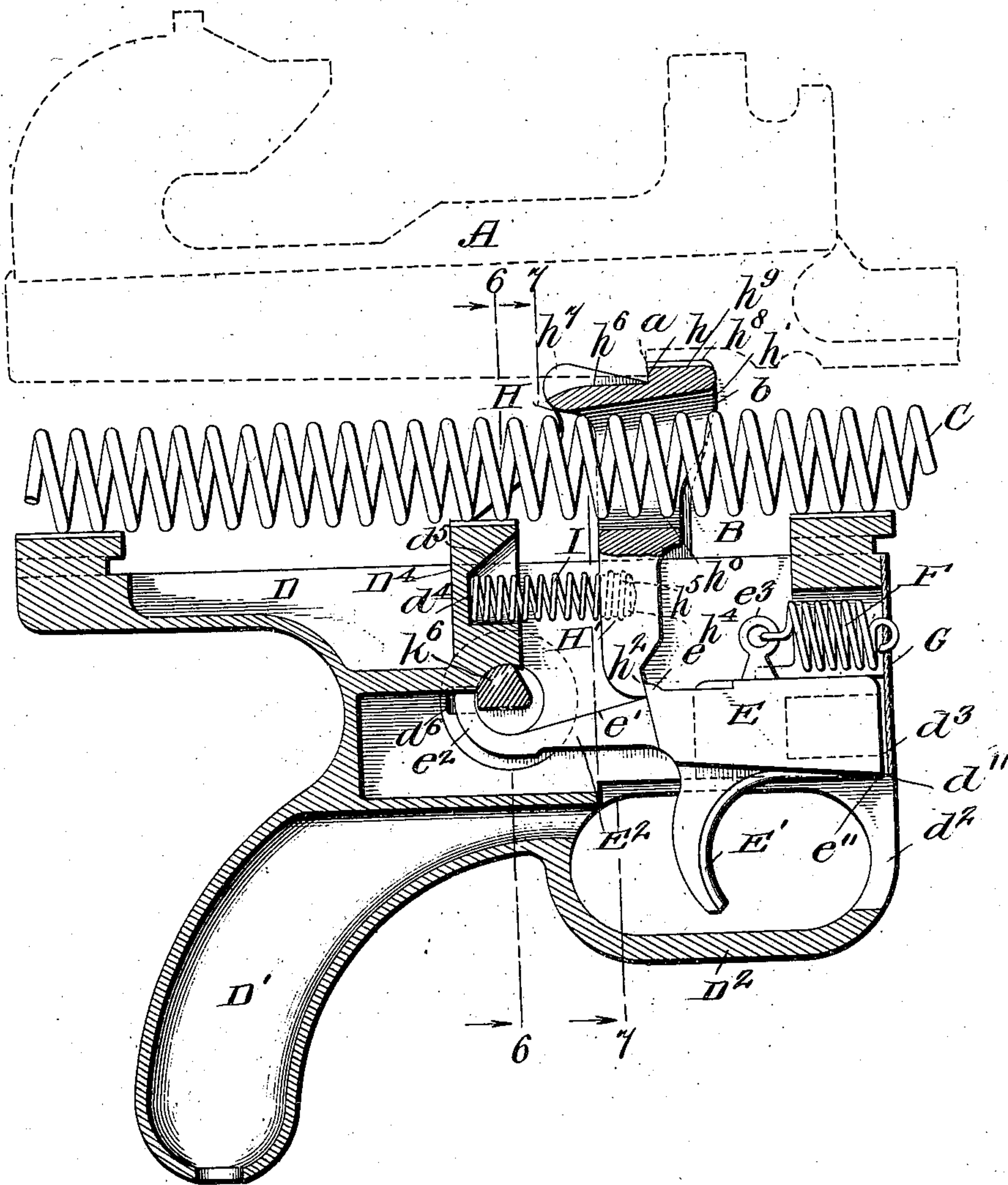
PATENTED MAY 21, 1907.

L. V. BENÉT & H. A. MERCIÉ.
FIRING GEAR.

APPLICATION FILED AUG. 20, 1906.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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4 SHEETS—SHEET 2.

Fig. 2.

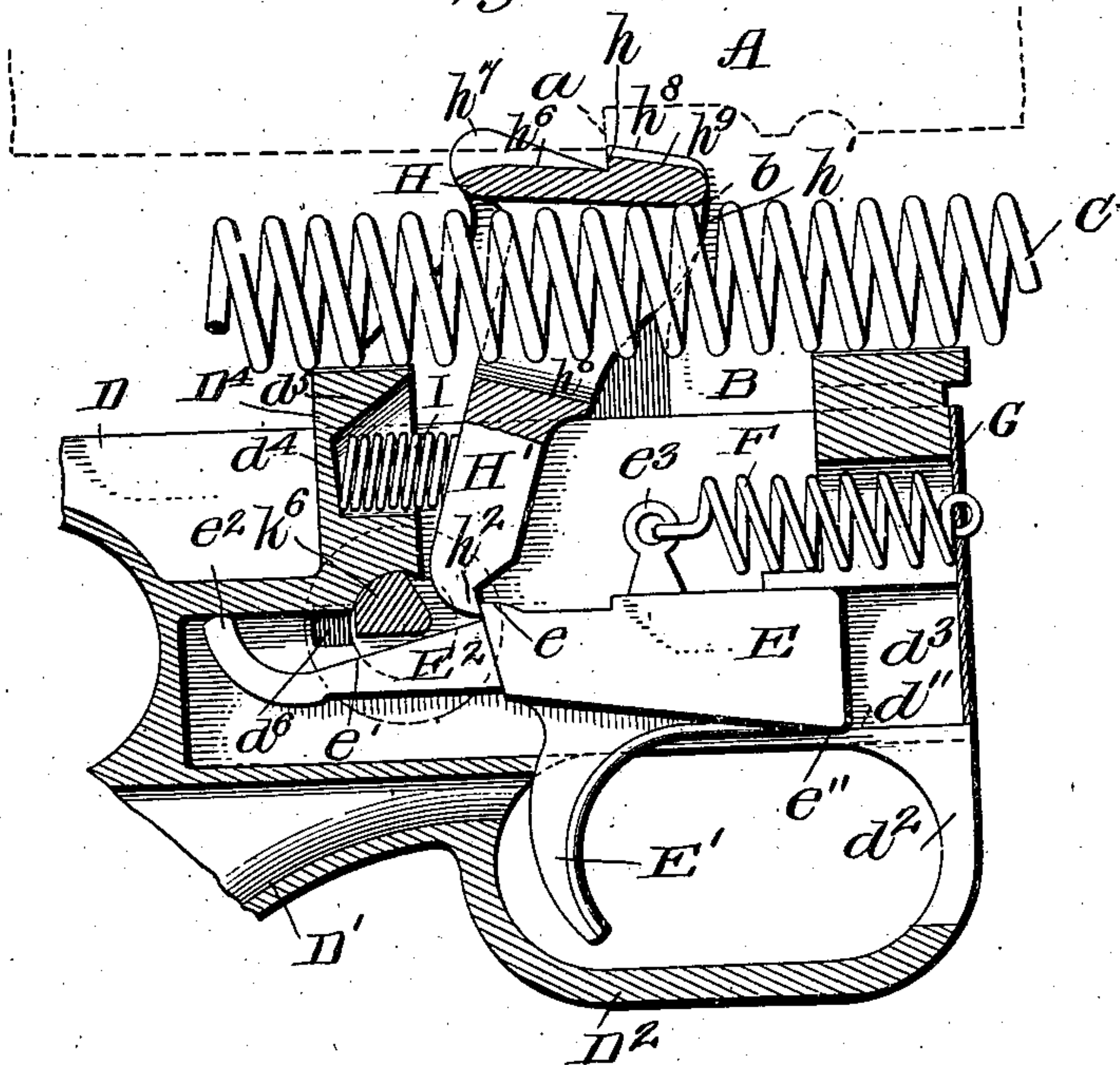


Fig. 3.

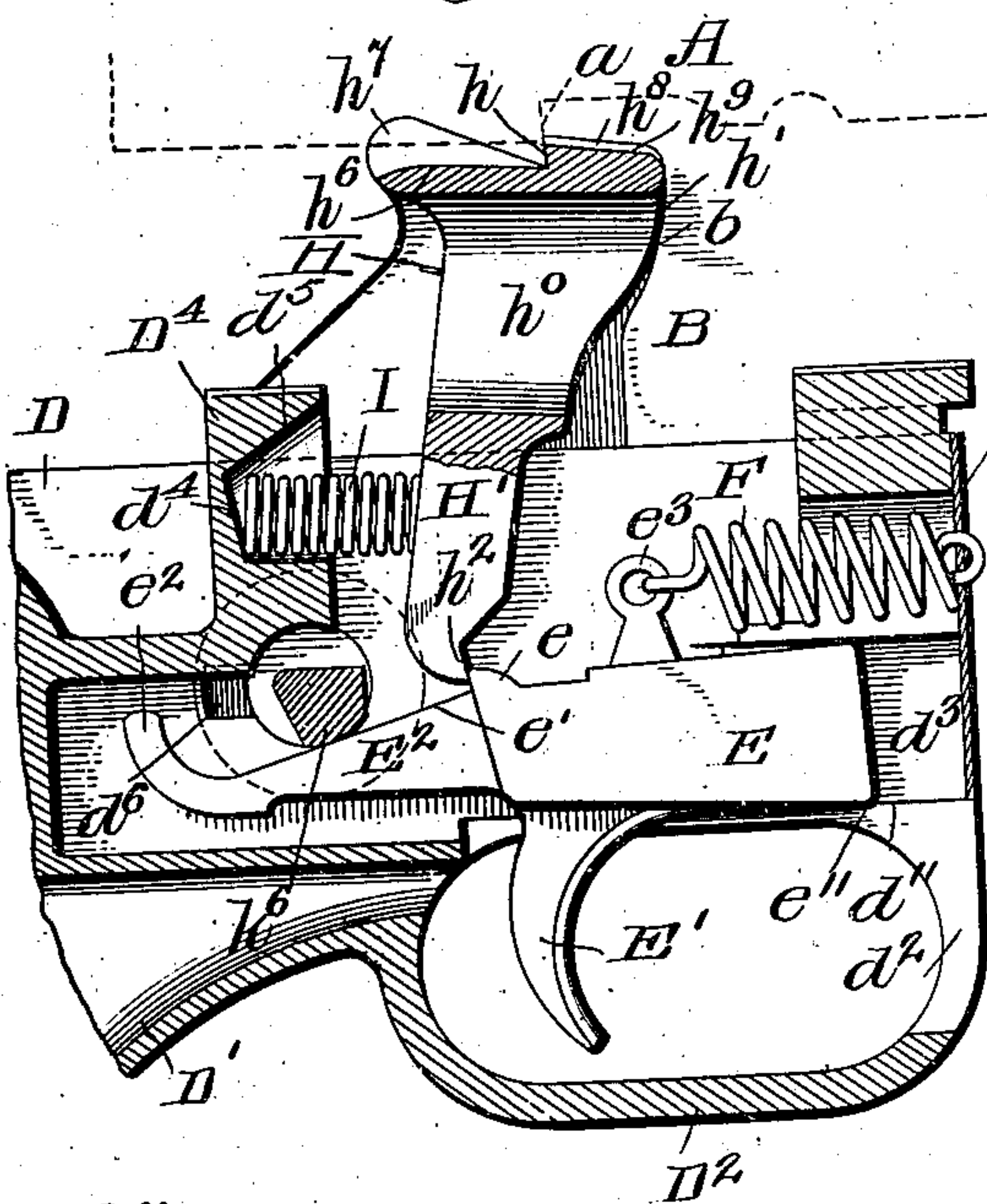
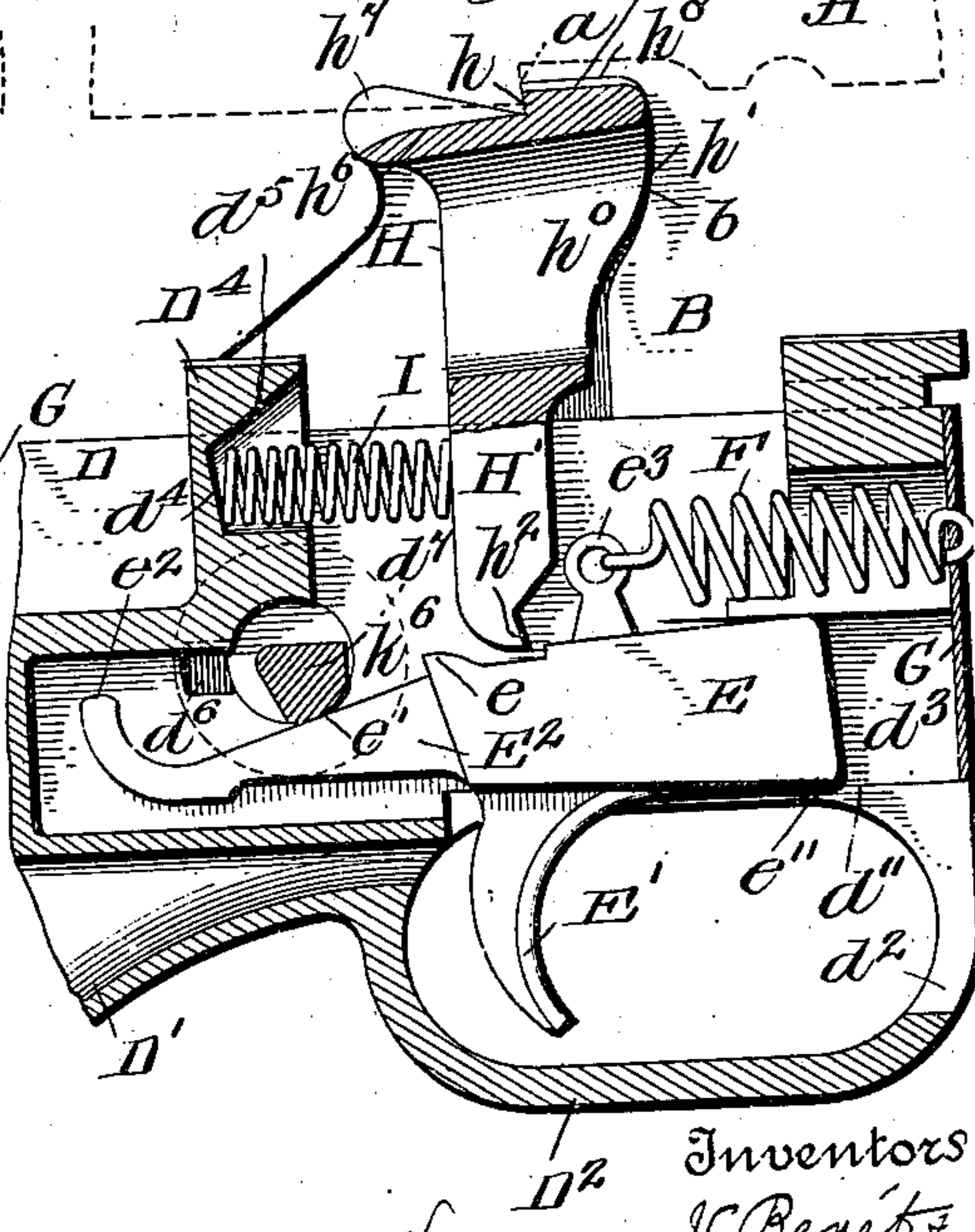


Fig. 4.



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4 SHEETS—SHEET 3.

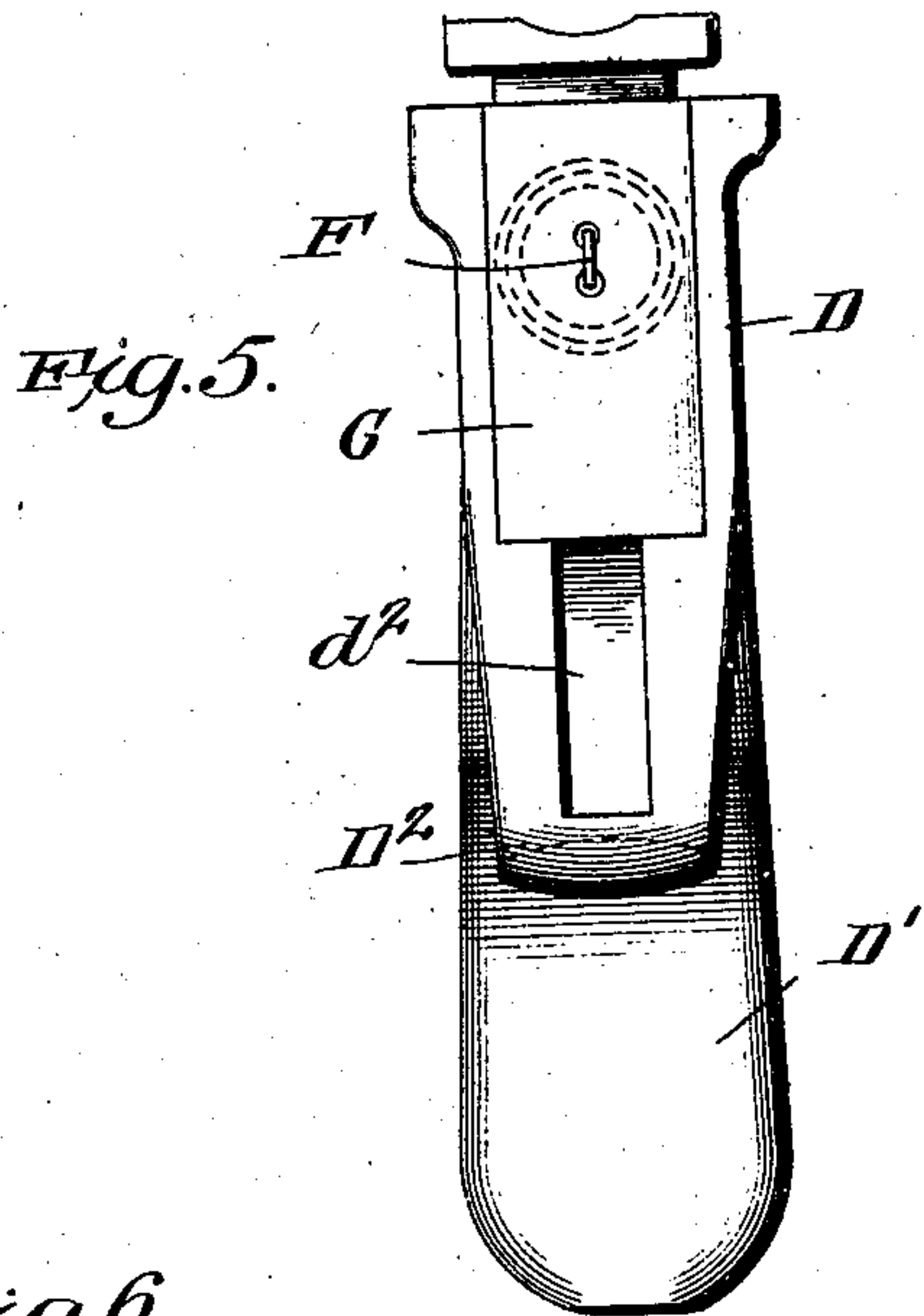


Fig. 6.

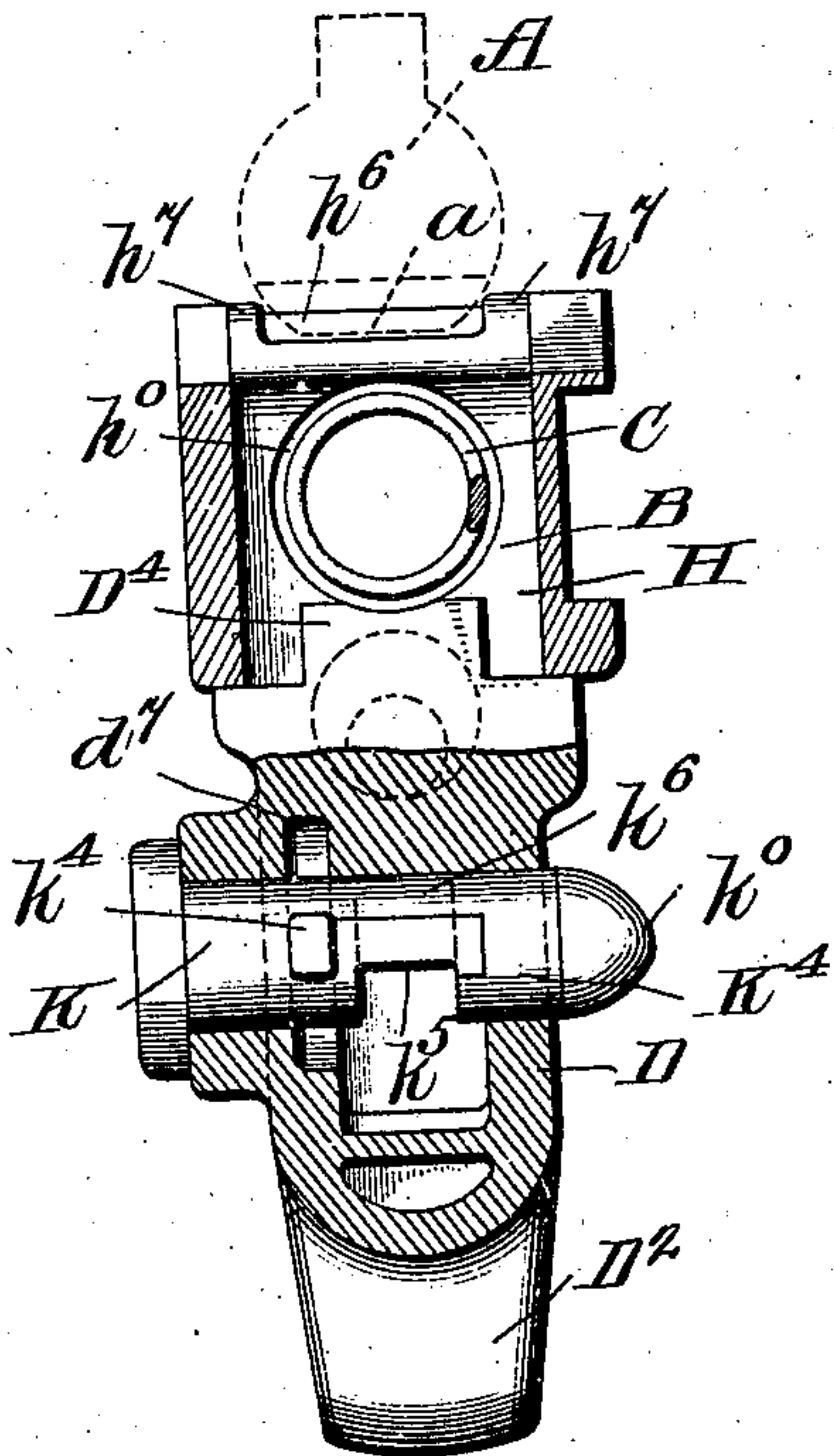
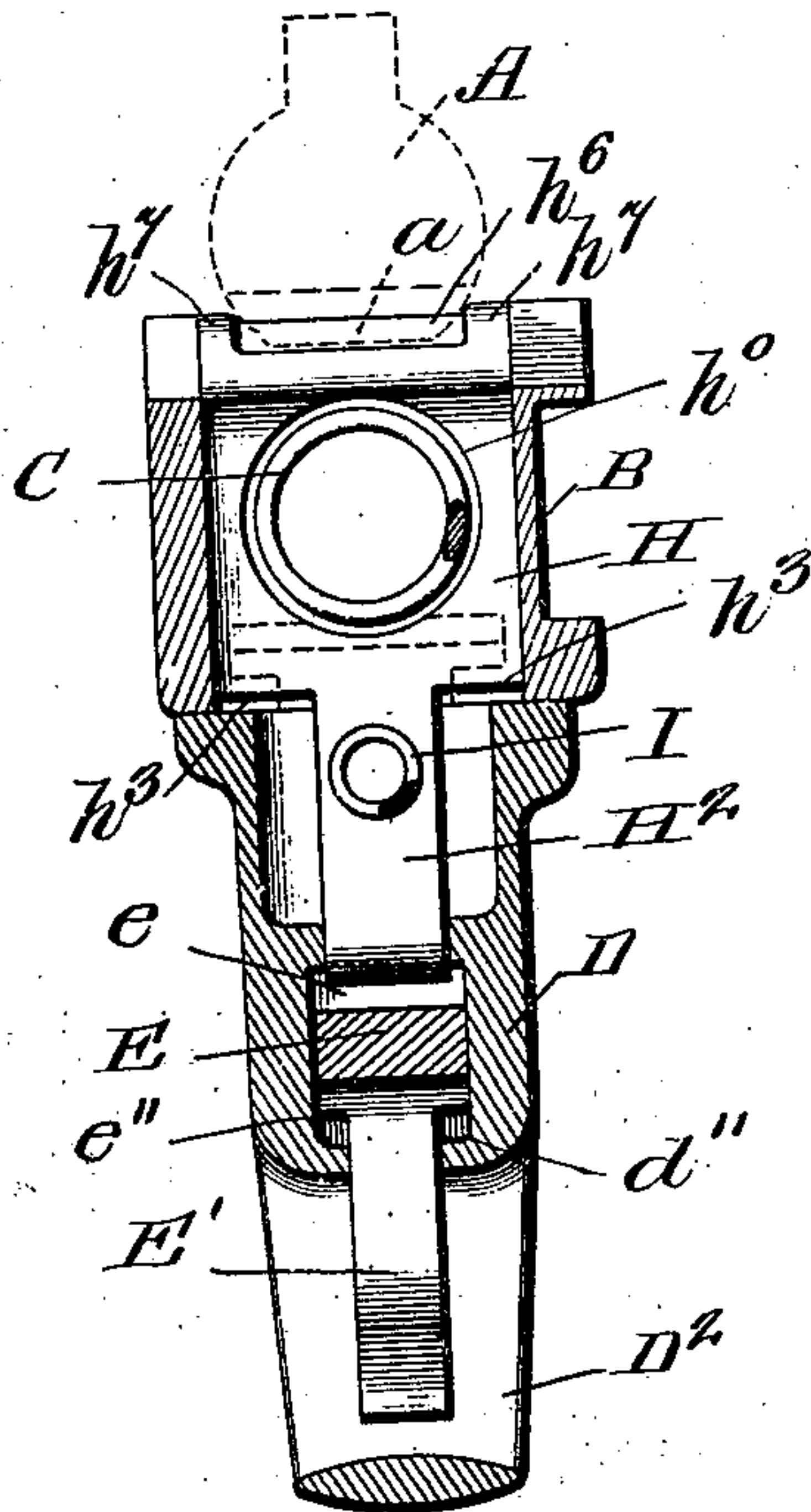


Fig. 7.



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4 SHEETS—SHEET 4.

Fig. 8

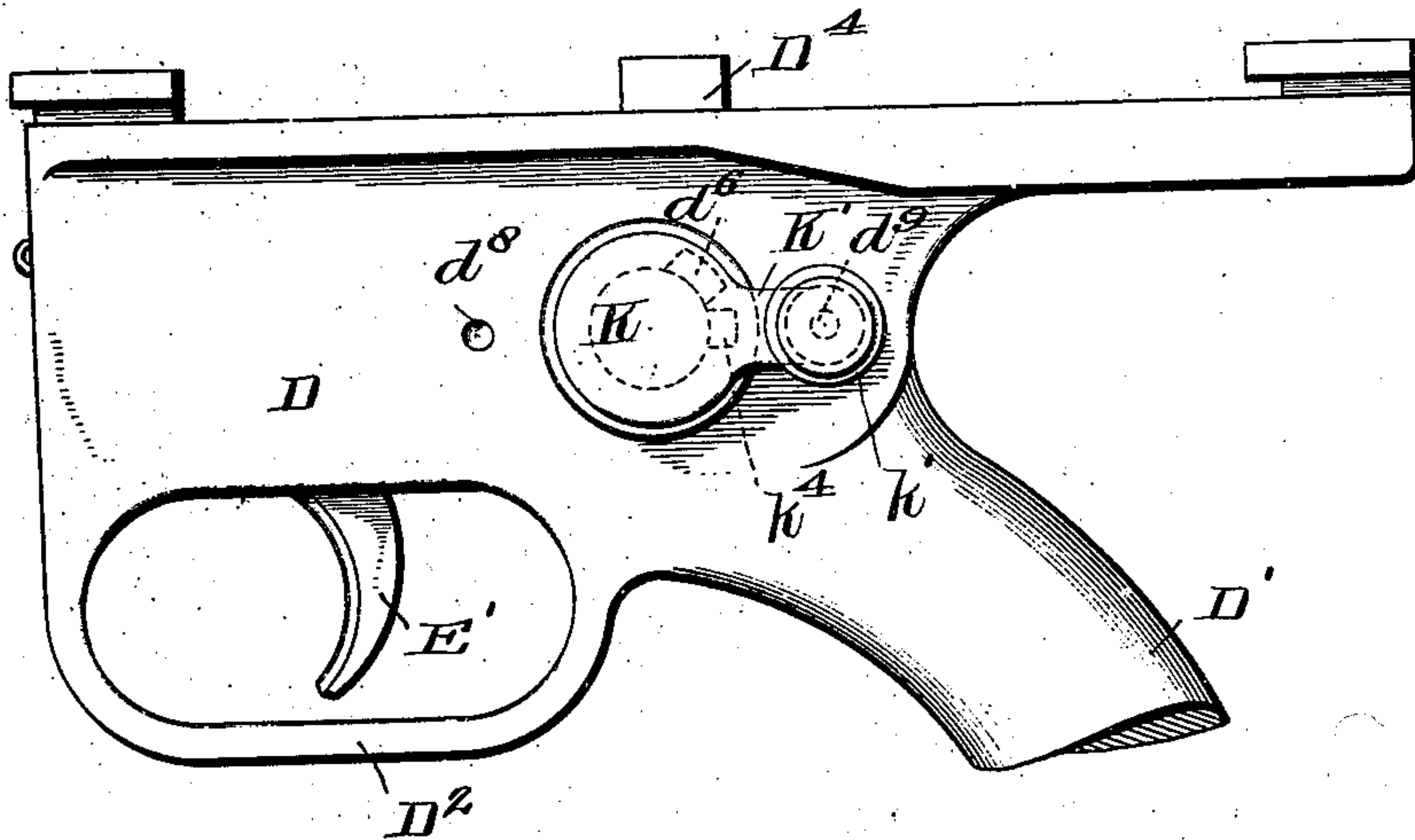


Fig. 9.

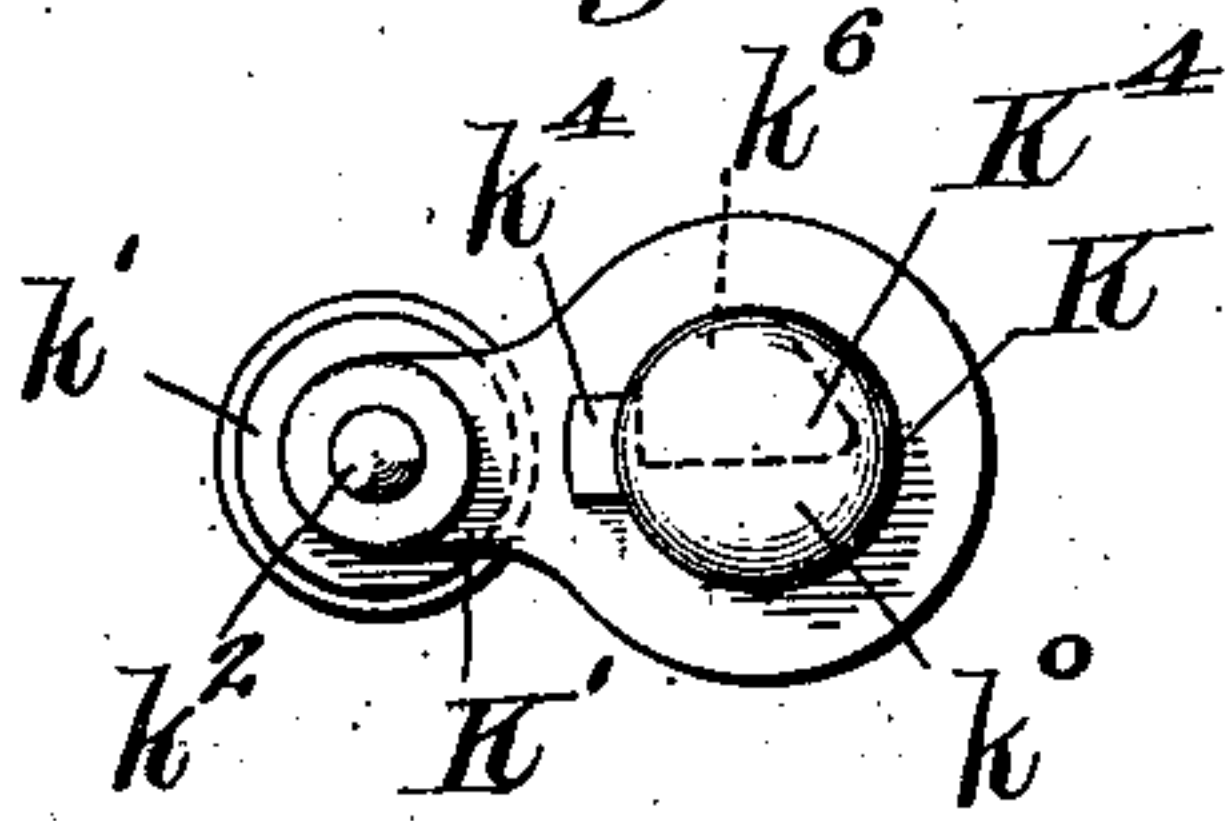


Fig. 11.

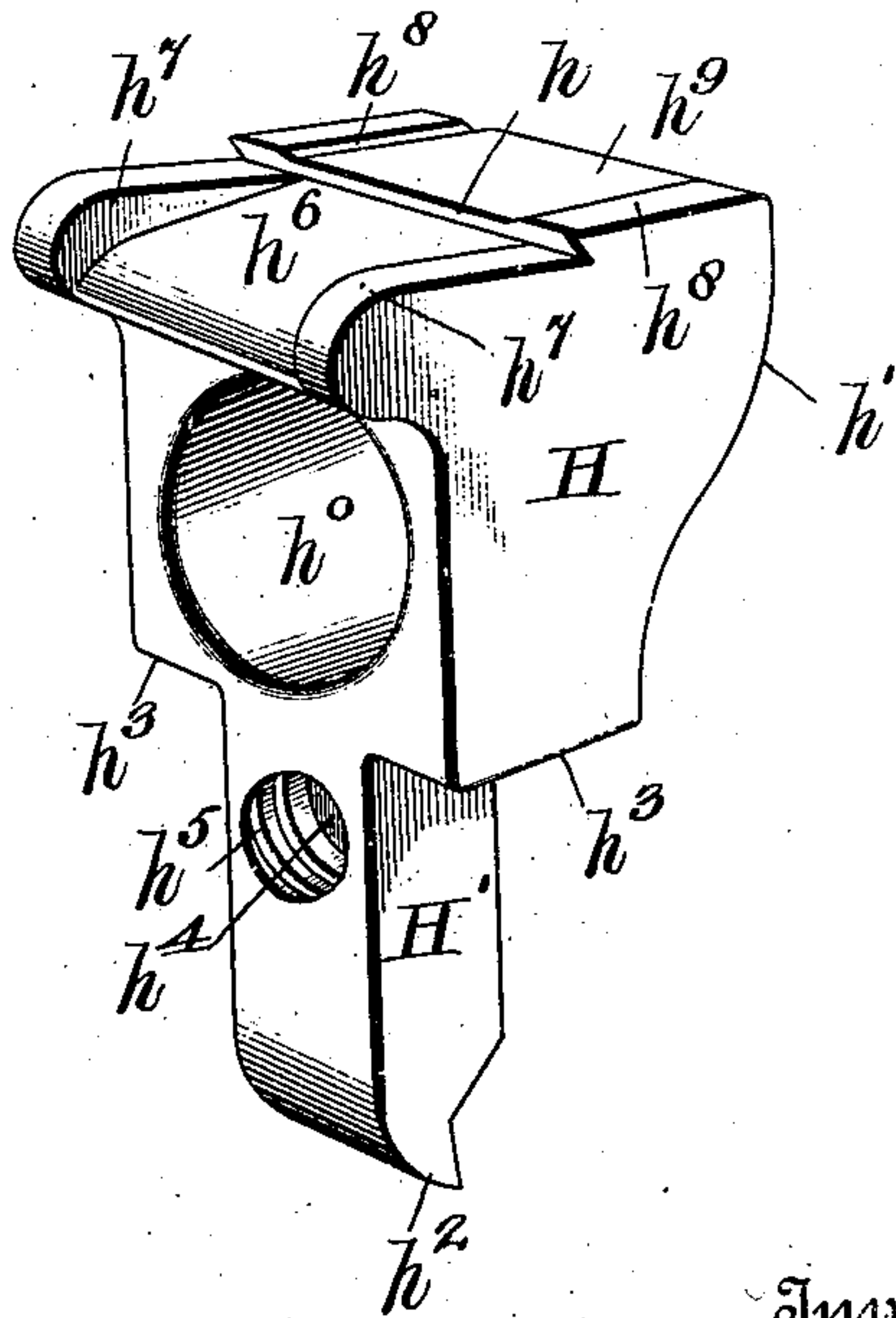
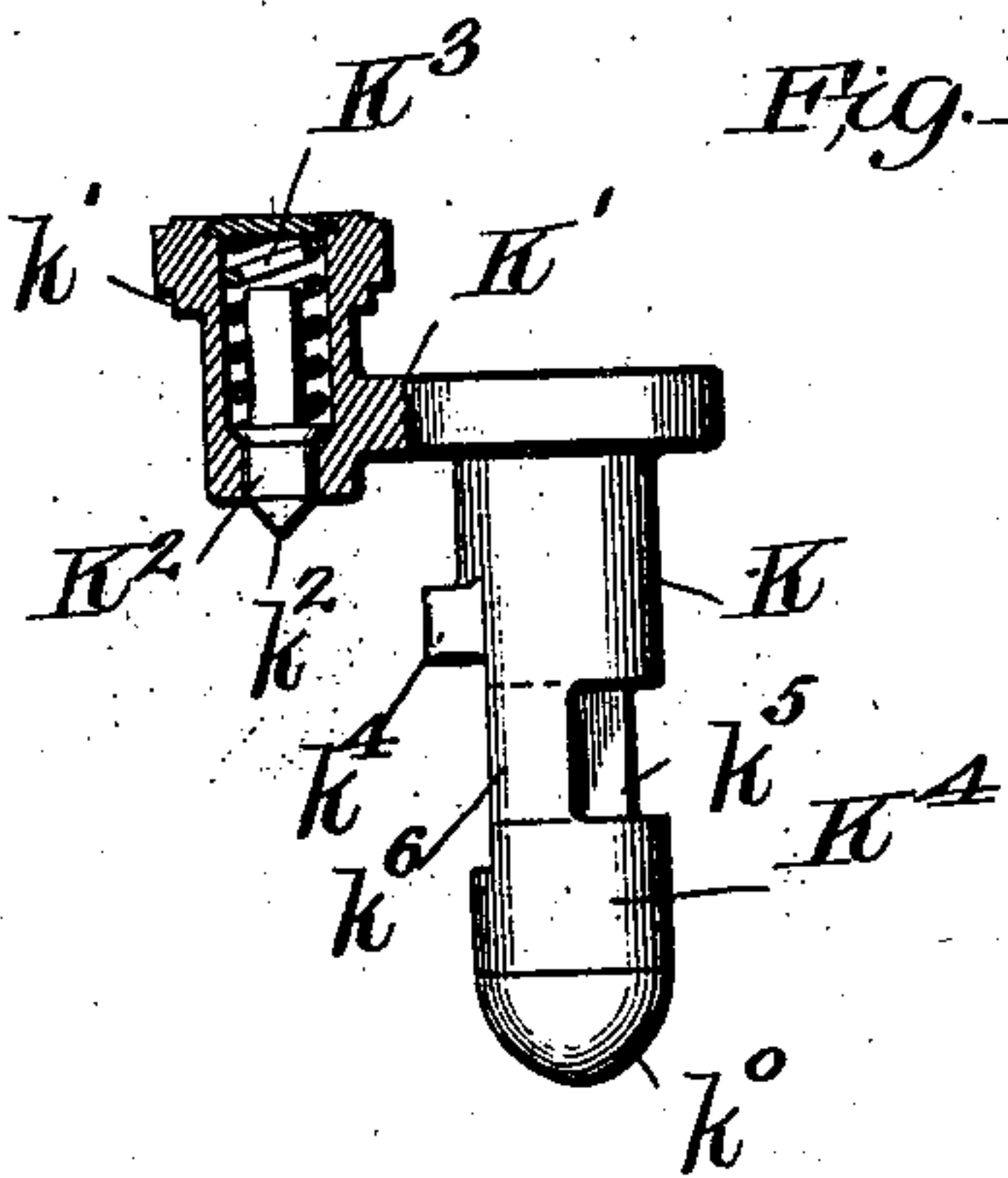


Fig. 10.



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UNITED STATES PATENT OFFICE.

LAURENCE V. BENÉT AND HENRI A. MERCIÉ, OF PARIS, FRANCE.

FIRING-GEAR.

No. 854,557.

Specification of Letters Patent.

Patented May 21, 1907.

Application filed August 20, 1906. Serial No. 331,341.

To all, whom it may concern:

Be it known that we, LAURENCE V. BENÉT, a citizen of the United States, and HENRI A. MERCIÉ, a citizen of the French Republic, both residing at Paris, France, have invented certain new and useful Improvements in Firing-Gear; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our present invention relates to improvements in firing mechanism for automatic guns, and it relates more especially to means for causing the gun to fire continuously and automatically as long as it is supplied with ammunition, or to cause the gun to fire single shots at the will of the operator.

With automatic guns as now most generally in use, more or less skill on the part of the operator is required to fire single shots from the gun, and it frequently happens that volleys are fired against the wishes of the operator. With the herein described apparatus, by a simple adjustment, the gun is caused to fire continuously and automatically, or automatically in single shots, and is under absolute control of the operator.

The invention is intended to apply to those automatic guns which are operated by a reciprocating piston or plunger, which is moved backward by the gases of discharge and returned to the initial position by the return spring. Among guns of this class are the well known Hotchkiss automatic guns, such, for instance, as are illustrated and described in the patents to Benét & Mercié, Nos. 588,380, granted August 17, 1897; 696,306, granted March 25, 1902, and 804,699, granted November 14, 1905.

In the accompanying drawings the apparatus is shown as applied to a gun of the Hotchkiss type just referred to, but obviously it will be applicable to any gas operated gun having a reciprocating piston with a return spring for restoring the piston to the initial position.

In the accompanying drawings:—Figure 1 shows a section through the pistol grip secured to the breech casing of the gun. Parts of the breech casing are omitted for the sake of clearness in the drawings and the heel of the reciprocating piston is shown in dotted lines. In this figure the piston is shown as located in the rear position with the parts in

position for continuous automatic firing when the trigger is pulled. Fig. 2 is a generally similar view to Fig. 1, except that the trigger has just been pulled and the piston is about to be released. Fig. 3 is a similar view to Figs. 1 and 2, but shows the cam set for single shot fire. In Fig. 3 the trigger is only partly drawn backward. Fig. 4 is a similar view to Fig. 3, but shows the trigger drawn backward still farther, and shows the detent disengaged from the trigger, and restored to the position for stopping the forward movement of the piston. In Figs. 3 and 4 the return spring is omitted for the sake of clearness in the drawings. Fig. 5 is a front view of the pistol grip and parts carried thereby, as seen from the right of Fig. 1. Fig. 6 represents a section along the line 6—6 of Fig. 1, and looking in the direction of the arrows, the cam block being shown in elevation. Fig. 7 represents a section along the broken line 7—7 of Fig. 1, and looking in the direction of the arrows. Fig. 8 is a side elevation of the pistol grip, and the parts carried thereby, as seen from the left of the gun. Fig. 9 is a detail showing the cam block and the lever for operating the same, as seen from the opposite side of Fig. 8. Fig. 10 is a detail showing the cam block in plan with the case for the locking pin in section. Fig. 11 is a perspective view of the detent on a larger scale than is shown in the other figures.

A represents the reciprocating piston, which is driven rearward by the powder gases, and moved forward again by the return spring C in the well known way. This piston reciprocates in a casing B, in rear of the bore of the gun, and to this casing another casing D is connected, which, for convenience of reference, we will call the pistol grip casing, this casing D carrying the hollow pistol grip D', the guard D² for the trigger, and being provided with chambers to receive the firing mechanism, hereinafter to be described.

E represents the trigger block, which carries a downwardly projecting trigger E', and a curved tail piece E², which has an inclined plane face e', and a tail piece e². This trigger block also carries an eye e³, connected by means of the spring F to the plate G, which closes the front of the chamber d³ in the pistol grip casing. Shoulders d¹¹ are provided at the bottom of this chamber d³ at either side of the slot d², through which the trigger

passes in assembling the parts. The trigger block E is provided with shoulders e^{11} to rock on these shoulders d^{11} , and thus permit the trigger block to rock through a small angle about a pivot near its forward end. The trigger block is drawn backward in the casing D when the trigger is pulled, and when the trigger is released, the trigger block is restored to the initial or forward position by the spring F.

H represents the detent shown in perspective in Fig. 11. This detent has a hook h adapted to engage the hook a on the piston, when desired, and to be disengaged therefrom, as will be hereinafter described. This detent is provided with a rounded face h' adapted to rock on a shoulder b in the breech casing, and is pressed toward this shoulder by means of the spring I. The lower end of the detent terminates in a tongue H' beneath the shoulders h^3 , and this tongue terminates in a hook h^2 , adapted to engage the hook e on the trigger block. The shoulders h^3 are normally held clear of the bottom of the casing by the spring I which tends to swing the tail end of the trigger block upward, thus lifting the detent slightly.

The detent is perforated, as at h^0 , to permit the free passage therethrough of the spring C, and the heel H' of the detent is provided with a socket h^4 with spiral grooves h^5 therein, so arranged that the spring I can screw into these spiral grooves, and thus the spring can be conveniently assembled with the detent.

In rear of the hook h the detent is provided with a rounded face h^6 between two guide lugs h^7 , and in front of the hook there is an inclined face h^8 between the guide lugs h^8 . This arrangement permits the hook a to pass freely between said guide lugs, but to engage the hook h when the latter is in the operative position. It will be seen that the detent is a heavy piece which extends across the interior of the breech casing and fits loosely therein, thus affording a very substantial stop to the motor piston and having no pivot pin is not likely to wear excessively or get out of order from continued usage. The free end of the spring I rests in a socket d^4 in the block D^4 , which is secured to or integral with the pistol grip casing. The upper wall of this socket d^4 is inclined, as at d^5 , for convenience of assembling the parts.

K represents a rotary cam block, which is provided with an arm K' , and a thumb lug k' , which thumb lug also constitutes a casing for the locking pin K^2 and the spring K^3 , which normally presses said locking pin outward. The locking pin is provided with a coned point k^2 , which may be snapped into or sprung out of one of the indentations d^8 or d^9 in the casing D. This cam block K is provided with a cylindrical portion K^4 , which is cut away, as at k^5 , to form a sector k^6 , and is pro-

vided with a lug k^4 for holding the cam block in place. This lug k^4 is passed through the transverse opening d^6 in the side of the casing D, and is then turned into the annular recess d^7 , after the manner of a bayonet joint. Thus this cam block may be conveniently applied to, or removed from, the gun, when desired, and may be rotated through an angle and held in two different positions by means of the locking pin k^2 engaging in either the recess d^8 or the recess d^9 , see Fig. 8.

The cylindrical portion K^4 of the cam block is so cut away, as at k^5 , that when the sector k^6 is turned up to the position indicated in Figs. 1 and 2, the said sector will not touch the heel E^2 of the trigger block at any time during the travel of said block; but when the sector k^6 is turned down to the position indicated in Figs. 3 and 4, the said sector will lie in the path of the inclined plane e' and will press the tail of the trigger piece, and with it the hook e , downward when the trigger is drawn to the rear.

Having thus described the construction of the parts, the operation is as follows. Suppose that it is desired to fire automatically. Swing the cam block until the pin K^2 engages the recess d^9 , as shown in Fig. 8. This will cause the cam sector k^6 to assume the position shown in Figs. 1 and 2, when it will be out of the way of the trigger block. Now open the breech, and load the gun, then pull on the trigger and hold it in its backward position, as shown in Fig. 2. This will cause the hook e to pull the hook h^2 back, disengaging the hook h from the hook a , and allowing the piston to fly forward under the action of the spring C. The gun will now be fired, and the powder gases will drive the piston backward again, and since the hook h will be held out of engagement with the hook a as long as the trigger is held back, the automatic firing will continue indefinitely, so long as the trigger is held back, provided the gun be supplied with ammunition. When the trigger is released, the trigger block will fly forward, under the action of the spring F, and the detent will assume the position shown in Fig. 1, the hook h engaging the hook a on the first forward stroke of the piston thereafter, and the gun will cease firing until the trigger is pulled again. Of course if the gunner is expert enough he may, by pulling the trigger quickly, and at the right interval, cause the gun to fire single shots, even though it is arranged for automatic firing, but this requires considerable experience, and single shot firing is positively effected, and without any skill on the part of the operator, by turning the cam sector k^6 to the position shown in Figs. 3 and 4, which is accomplished by snapping the pin K^2 into the opposite recess d^8 , see Fig. 8. It will be seen that when the trigger is drawn back to the position shown in Fig. 2, the spring F will tend to rock the

trigger block E upward about the point e^{11} , causing the hook e to continue in engagement with the hook h^2 , but when the cam sector is turned down to the position shown in Figs. 3 and 4, a slight movement of the trigger block to the rear will cause the inclined face e' to strike the cam sector, as shown in Fig. 3, and further movement of the trigger block to the rear will rock the trigger block E downward about point e^{11} against the action of the spring F, and will wedge the hook e out of engagement with the hook h^2 . Thus before the trigger is brought to its rear position, the hook h^2 will be released, as shown in Fig. 4, and the detent will be rocked by the spring I back to the initial position, causing the hook h to engage the hook a when the piston starts forward again after the gun has been fired. It will be noted that the detent H rolls about its curved face h' against the abutment b in the breech casing. Thus it will be seen that the mere act of pulling back the trigger will release the piston and will allow it to fly forward, thus firing the gun; while before the piston returns to the backward position again, the detent has been released from engagement with the trigger block, and the hook h has been restored to the engaging position, with regard to the hook a , and consequently the piston is kept from returning again to the forward position, after a single shot has been fired. To fire the next shot, the gunner lets go the trigger again, and the trigger block is drawn by the spring F to the initial position with the hook e in front of and engaging the hook h^2 , as shown in Fig. 1, when the cycle may be repeated. After a single shot has been fired, with the cam sector in the position shown in Figs. 3 and 4, and after the trigger has been returned to the initial position, to fire a second shot the cartridge must be inserted and the trigger pulled again, as before, and this single shot firing will continue indefinitely as long as the cam sector is maintained in the position shown in Figs. 3 and 4.

It will be noted that the backs of the hooks h and a , also of the hooks h^2 and e , are so inclined as to permit the one hook to wedge by the other in returning to the engaging position from the disengaged position. Thus when the piston recoils, the back of the hook a strikes around the face h^2 of the detent H, and presses the detent down against the lifting action of the spring F just enough to allow the hook a to pass, when the detent is snapped up again into the engaging position by said spring F. Again, when the back of the hook e engages the back of the hook h , the trigger block E is wedged down slightly, rocking about the point e^{11} against the action of the spring F, yielding enough to allow the hook e to pass the hook h^2 , and if then swings up into engagement therewith under the action of the spring F. Thus it will be seen

that we provide an extremely simple mechanism in which a detent cooperating with the piston of the breech mechanism is placed under the control of a trigger pulled by hand, and in which a device is provided operated from the exterior of the gun, which permits either single shot fire or automatic fire at the will of the operator.

It will be obvious that various modifications might be made in the herein described apparatus, which could be used without departing from the spirit of our invention.

Having thus described our invention, what we claim and desire to secure by Letters Patent of the United States, is

1. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism and a main spring for returning the piston to the forward position, of a detent perforated to permit the passage therethrough of said spring adapted to hold said piston in a rearward position, a trigger, means controlled by said trigger for releasing said detent from engagement with said piston, and means for automatically restoring said detent to the initial position when said trigger controlled means is thrown out of engagement with said detent, substantially as described.
2. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent adapted to hold said piston in a rearward position, a trigger, means controlled by said trigger for releasing said detent, means for automatically throwing said trigger controlled means out of engagement with said detent when said trigger is pulled, and means for automatically restoring said detent to the initial position when released, substantially as described.
3. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism of a rolling detent adapted to hold said piston in a rearward position, a trigger, means controlled by said trigger for releasing said detent, a cam for throwing said means out of engagement with said detent if desired when said trigger is pulled, means for throwing said cam into and out of engagement with said trigger controlled means, and means for automatically restoring said detent to the initial position when released, substantially as described.
4. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a detent perforated to permit the passage therethrough of the piston spring and mounted to rock in the breech casing and adapted to hold said piston in a rearward position, a trigger, means controlled by said trigger for releasing said detent from engagement with said piston, and a spring automatically rocking said detent back to the initial position when said trigger

controlled means is thrown out of engagement with said detent, substantially as described.

5 In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted to rock in the breech casing and adapted to hold said piston in a rearward position, a trigger, means controlled by said trigger for releasing said detent, means for automatically throwing said trigger controlled means out of engagement with said detent when said trigger is pulled, and a spring automatically rocking said detent back to the initial position when released, substantially as described.

6. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted to rock in the breech casing and adapted to hold said piston in a rearward position, a trigger, means controlled by said trigger for releasing said detent, a cam for throwing said means out of engagement with said detent, if desired, when said trigger is pulled, means for throwing said cam into and out of engagement with said trigger controlled means, and a spring automatically rocking said detent back to initial position when released, substantially as described.

7. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, and a spring for restoring the same to the initial position of a detent perforated to receive said spring loosely fitting the breech casing and adapted to arrest said piston on its forward stroke, and a trigger block adapted to engage said detent and throw the same out of engagement with said piston, substantially as described.

8. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted in the breech casing and adapted to arrest said piston on its forward stroke, a trigger block adapted to engage said detent and throw the same out of engagement with said piston, means for disengaging said trigger block from said detent at a predetermined point of the movement of the trigger, and means for automatically restoring the detent to the initial position, substantially as described.

9. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted in the breech casing and adapted to arrest said piston on its forward stroke, a trigger block adapted to engage said detent and to throw the same out of engagement with said piston, a trigger carried by said trigger block, means for throwing said trigger block out of engagement with said detent at a predetermined point of the travel of said trigger, with means for automatically restoring the detent

to the initial position when released from engagement with said trigger block, substantially as described.

10. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a detent perforated to permit the passage therethrough of the piston spring and loosely fitting the breech casing and adapted to arrest said piston on its forward stroke, a trigger block adapted to engage said detent and throw the same out of engagement with said piston with means for restoring said detent and said trigger block to the initial position, when released, substantially as described.

11. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a detent perforated to permit the passage therethrough of the piston spring and loosely fitting the breech casing and adapted to arrest said piston on its forward stroke, a trigger block adapted to engage said detent and throw the same out of engagement with said piston, and springs for restoring the detent and trigger block to the initial position, when released, substantially as described.

12. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted in the breech casing and adapted to arrest said piston on its forward stroke, a sliding trigger block adapted to engage said detent and throw the same out of engagement with said piston, a trigger carried by said trigger block, with means for disengaging said trigger block from said detent at a predetermined point of the movement of the trigger, means for automatically restoring the detent to the initial position, when released, and means for restoring the trigger block to the initial position when released, substantially as described.

13. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, provided with a hook, of a spring impressed detent perforated to permit the passage therethrough of the piston spring and mounted to rock in the breech casing and adapted to engage said hook and arrest said piston on its forward stroke, and a spring constrained trigger block adapted to engage said detent and throw the same out of engagement with said piston, when drawn rearward, said detent and trigger block returning to the initial position under the action of their respective springs when released, substantially as described.

14. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, provided with a hook, of a spring impressed detent mounted to roll in the breech casing and adapted to engage said hook and arrest said piston on its forward stroke and a spring constrained trigger

block adapted to engage said detent and throw the same out of engagement with said piston, when drawn rearward, said detent and trigger block returning to the initial position under the action of their respective springs when released, with means operable at will for disengaging said trigger block from said detent at a predetermined point of the movement of the trigger block, substantially as described.

15. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, provided with a hook, of a spring impressed detent mounted to roll in the breech casing and adapted to engage said hook and arrest said piston on its forward stroke, and a spring constrained trigger block adapted to engage said detent and throw the same out of engagement with said piston, when drawn rearward, said detent and trigger block returning to the initial position under the action of their respective springs when released, a trigger carried by said trigger block, and means operable at will for throwing said trigger block out of engagement with said detent at a predetermined point of the travel of said trigger block, substantially as described.

16. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted in the breech casing and adapted to arrest said piston on its forward stroke, a trigger block adapted to engage said detent and throw the same out of engagement with said piston, means for restoring said detent and said trigger block to the initial position, when released, and means for disengaging said trigger block from said detent at a predetermined point of the movement of said trigger block, substantially as described.

17. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted in the breech casing and adapted to arrest said piston on its forward stroke, a trigger block adapted to engage said detent and throw the same out of engagement with said piston, springs for restoring the detent and trigger block to the initial position, when released, and means for disengaging said trigger block from said detent at a predetermined point of the movement of said trigger block, substantially as described.

18. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted in the breech casing and adapted to arrest said piston on its forward stroke, a sliding trigger block adapted to engage said detent and throw the same out of engagement with said piston, a trigger carried by said trigger block, a movable cam for disengaging said trigger block from said detent at a predetermined point of the movement of the trigger,

means for locking said cam in either the operative or inoperative position, means for automatically restoring the detent to the initial position, when released, and means for restoring the trigger block to the initial position when released, substantially as described.

19. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a detent perforated to permit the passage therethrough of the piston spring and loosely fitting the breech casing and adapted to arrest said piston on its forward stroke, and a trigger block adapted, when pulled rearward, to engage said detent and throw the same out of engagement with said piston, with means for restoring both the trigger block and detent to the initial position when released, substantially as described.

20. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism provided with a hook, of a rolling detent having a hook at each end, mounted in the breech casing and having the hook at its upper end adapted to arrest said piston on its forward stroke, a trigger block adapted to engage the hook at the lower end of said detent and throw the same out of engagement with said piston, means operable at will for disengaging said trigger block from said detent at a predetermined point of the movement of the trigger, and means for automatically restoring the detent and the trigger block to the initial position, when released, substantially as described.

21. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a detent perforated to permit the passage therethrough of the piston spring and loosely fitting the breech casing and adapted, to arrest said piston on its forward stroke, a sliding trigger block adapted to engage said detent and throw the same out of engagement with said piston, a trigger secured to said block, and means for restoring said detent and said trigger block to the initial position, when released, substantially as described.

22. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a detent perforated to permit the passage therethrough of the piston spring and loosely fitting the breech casing and adapted to arrest said piston on its forward stroke, a sliding trigger block adapted, when pulled rearward, to engage said detent and throw the same out of engagement with said piston, a trigger secured to said block, and springs for restoring the detent and trigger block to the initial position, when released, substantially as described.

23. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted in the breech casing and adapted to arrest

said piston on its forward stroke, a sliding trigger block mounted to rock slightly in said casing and adapted to engage said detent and throw the same out of engagement with said piston, a trigger carried by said trigger block, a cam, means for throwing said cam into the path of said trigger block, when desired, for disengaging said trigger block from said detent at a predetermined point of the movement of the trigger, means for automatically restoring the detent to the initial position, when released, and means for restoring the trigger block to the initial position when released, substantially as described.

24. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, provided with a hook, of a spring impressed detent mounted to rock in the breech casing and adapted to engage said hook and arrest said piston on its forward stroke, and a spring constrained trigger block provided with a hook adapted to engage said detent and throw the same out of engagement with said piston, when drawn rearward, said detent and trigger block returning to the initial position under the action of their respective springs when released, said trigger block also being provided with an inclined face in rear of said hook, and a movable cam, with means for locking the same in or out of position to engage said inclined face, substantially as described.

25. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, provided with a hook, of a spring impressed detent mounted to rock in the breech casing and adapted to engage said hook and arrest said piston on its forward stroke, and a spring constrained trigger block adapted to engage said detent and throw the same out of engagement with said piston, when drawn rearward, said detent and trigger block returning to the initial position under the action of their respective springs when released, and a movable cam, with means for locking the same in or out of the path of said trigger block, for releasing said trigger block from said detent at a predetermined point of the movement of the trigger block, substantially as described.

26. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, provided with a hook, of a spring impressed detent mounted to rock in the breech casing and adapted to engage said hook and arrest said piston on its forward stroke, and a spring constrained trigger block adapted to engage said detent and throw the same out of engagement with said piston, when drawn rearward, said detent and trigger block returning to the initial position under the action of their respective springs when released, a trigger carried by said trigger block, a cam, and means operable at will for throwing said cam into en-

gagement with said trigger block and thus throwing the latter out of engagement with said detent at a predetermined point of the travel of said trigger block, substantially as described.

27. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted in the breech casing and adapted to arrest said piston on its forward stroke, a trigger block adapted to engage said detent and throw the same out of engagement with said piston, means for restoring said detent and said trigger block to the initial position, when released, and a cam arrangement for disengaging said trigger block from said detent at a predetermined point of the movement of said trigger block, when desired, substantially as described.

28. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted in the breech casing and adapted to arrest said piston on its forward stroke, a trigger block adapted to engage said detent and throw the same out of engagement with said piston, springs for restoring the detent and trigger block to the initial position, when released, and a cam arrangement for disengaging said trigger block from said detent at a predetermined point of the movement of said trigger block, when desired, substantially as described.

29. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, a detent mounted in the breech casing and adapted to arrest said piston on its forward stroke, a sliding trigger block adapted to engage said detent and throw the same out of engagement with said piston, said trigger block having an inclined face in rear of said detent, a trigger carried by said trigger block, a cam arranged in the path of said inclined face for disengaging said trigger block from said detent at a predetermined point of the movement of the trigger, means for locking said cam in either the operative or inoperative position, means for automatically restoring the detent to the initial position, when released, and means for restoring the trigger block to the initial position when released, substantially as described.

30. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism provided with a hook, of a rolling detent having a hook at each end, mounted in the breech casing and having the hook at its upper end adapted to arrest said piston on its forward stroke, a trigger block adapted to engage the hook at the lower end of said detent and throw the same out of engagement with said piston, a cam arrangement operable at will for disengaging said trigger block from said detent at a pre-

determined point of the movement of the trigger, and means for automatically restoring the detent and the trigger block to the initial position, when released, substantially
5 as described.

31. In an automatic gun, the combination with a reciprocating piston for operating the breech mechanism, of a rolling detent mounted in the breech casing and adapted
10 to arrest said piston on its forward stroke, a sliding trigger block mounted to rock slightly in said casing and adapted to engage said detent and throw the same out of engagement with said piston, a trigger carried by said
15 trigger block, a cam, means for throwing said cam into the path of said trigger block, when

desired, for disengaging said trigger block from said detent at a predetermined point of the movement of the trigger, a spring for automatically restoring the detent to the
20 initial position, when released, and a second spring for restoring the trigger block to the initial position when released, substantially as described.

In testimony whereof, we affix our signatures, in presence of two witnesses. 25

LAURENCE V. BENÉT.
HENRI A. MERCIÉ.

Witnesses:

CHARLES KURER,
J. A. CHOUINARD.