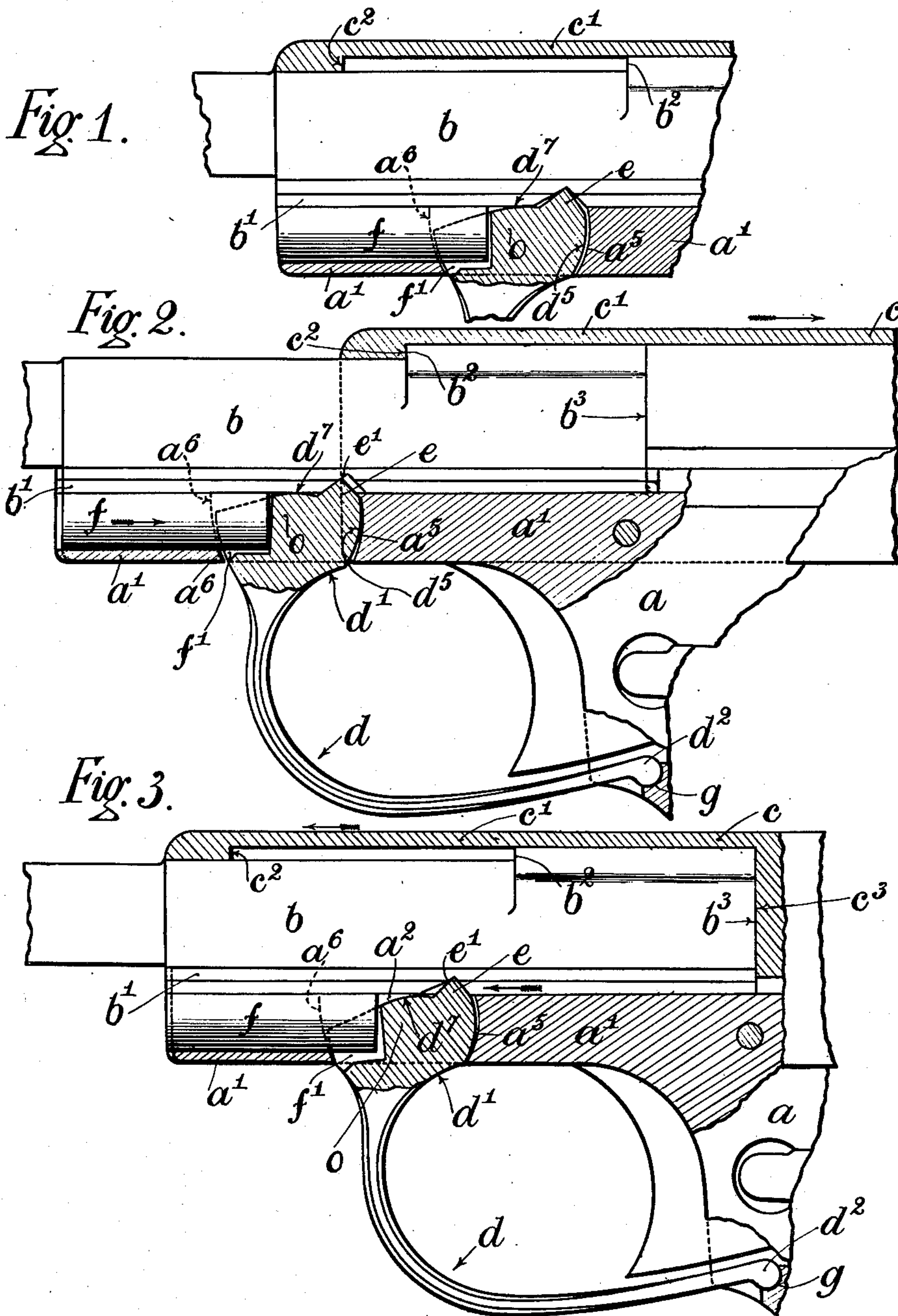


W. J. WHITING.
 AUTOMATIC SMALL ARM.
 APPLICATION FILED APR. 9, 1909.

936,967.

Patented Oct. 12, 1909.

3 SHEETS—SHEET 1.



WITNESSES

E. E. Weaver

INVENTOR

William J. Whiting

James L. Norris

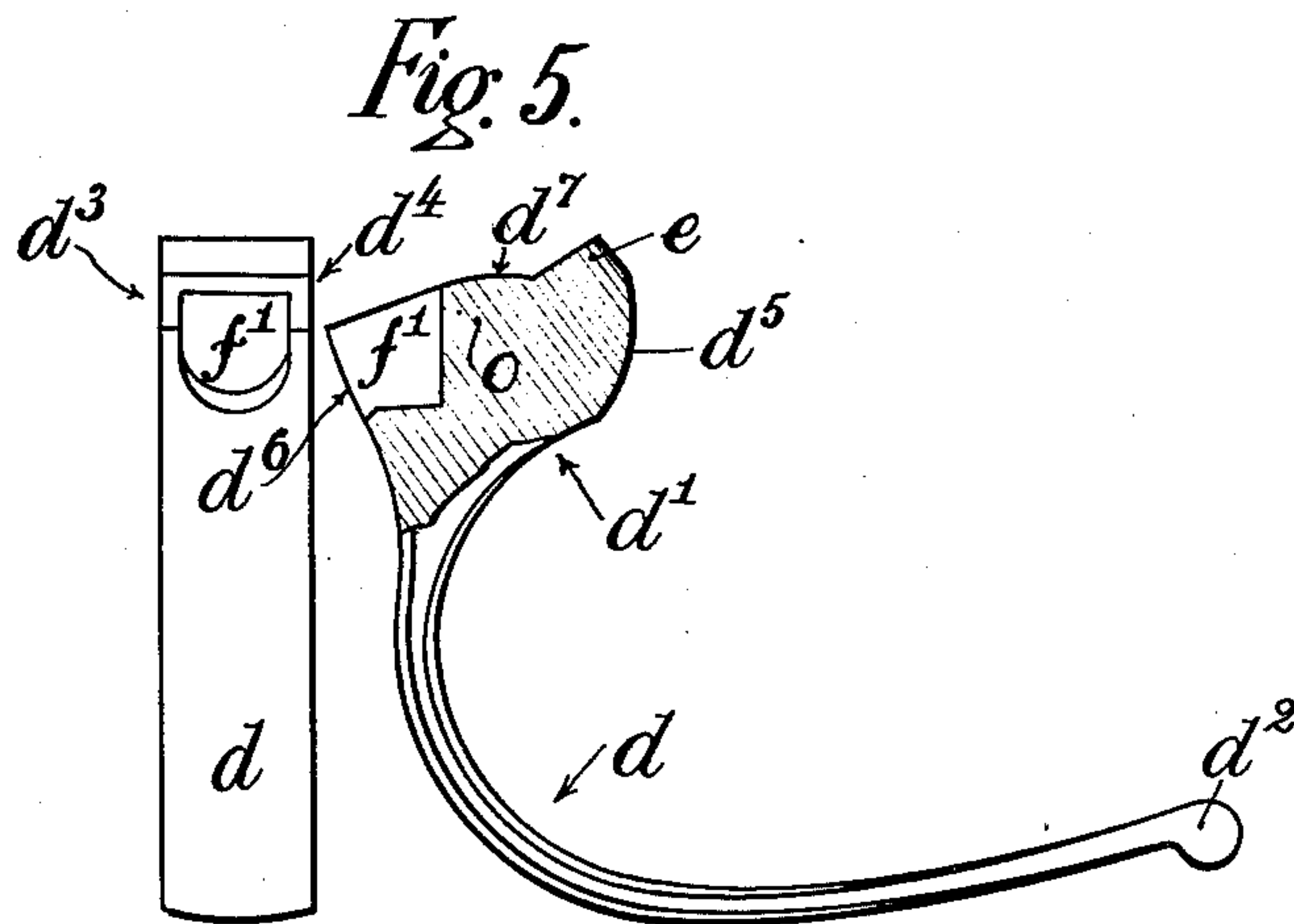
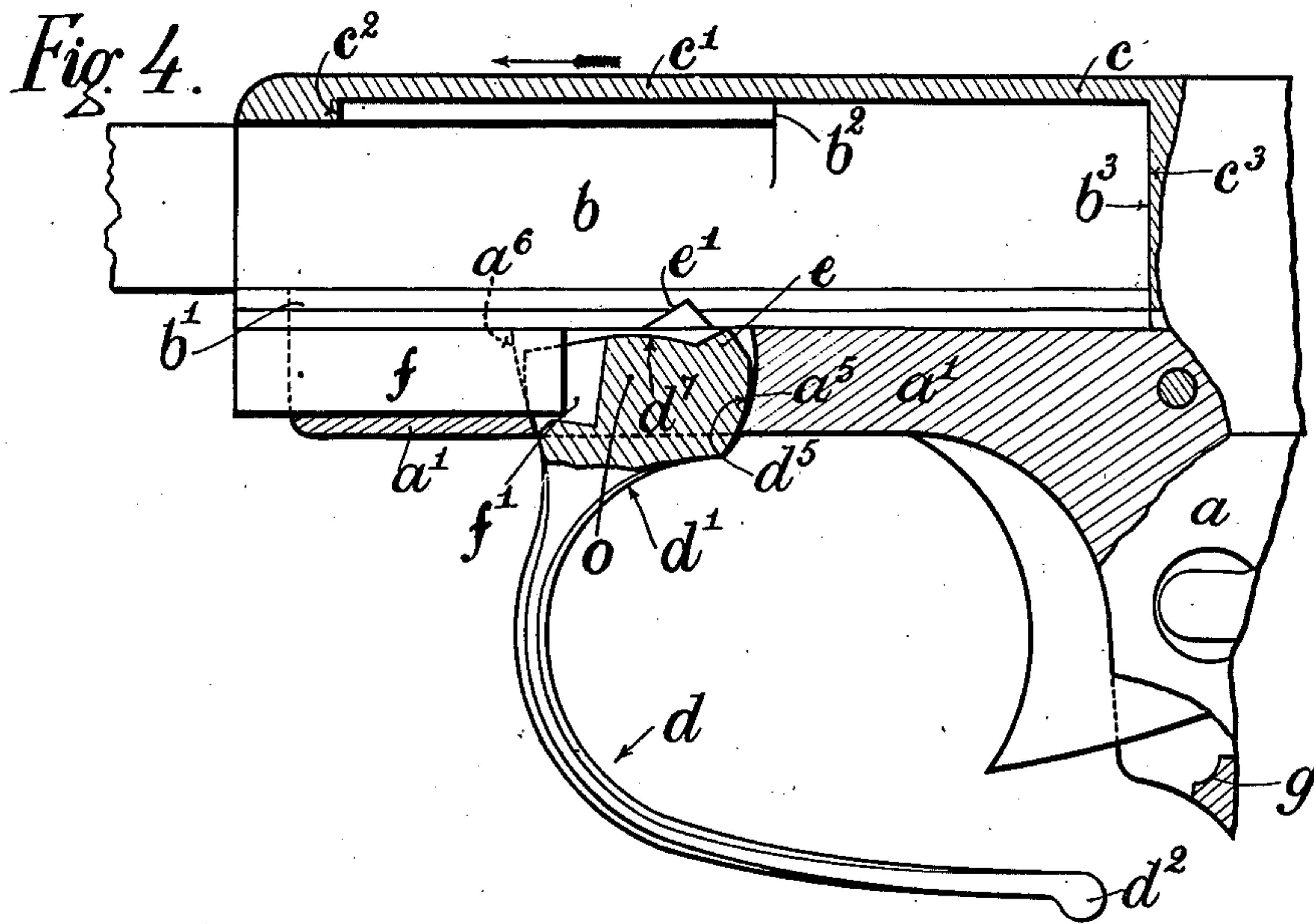
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WITNESSES

[Signature]
[Signature]

INVENTOR *William J. Whiting*

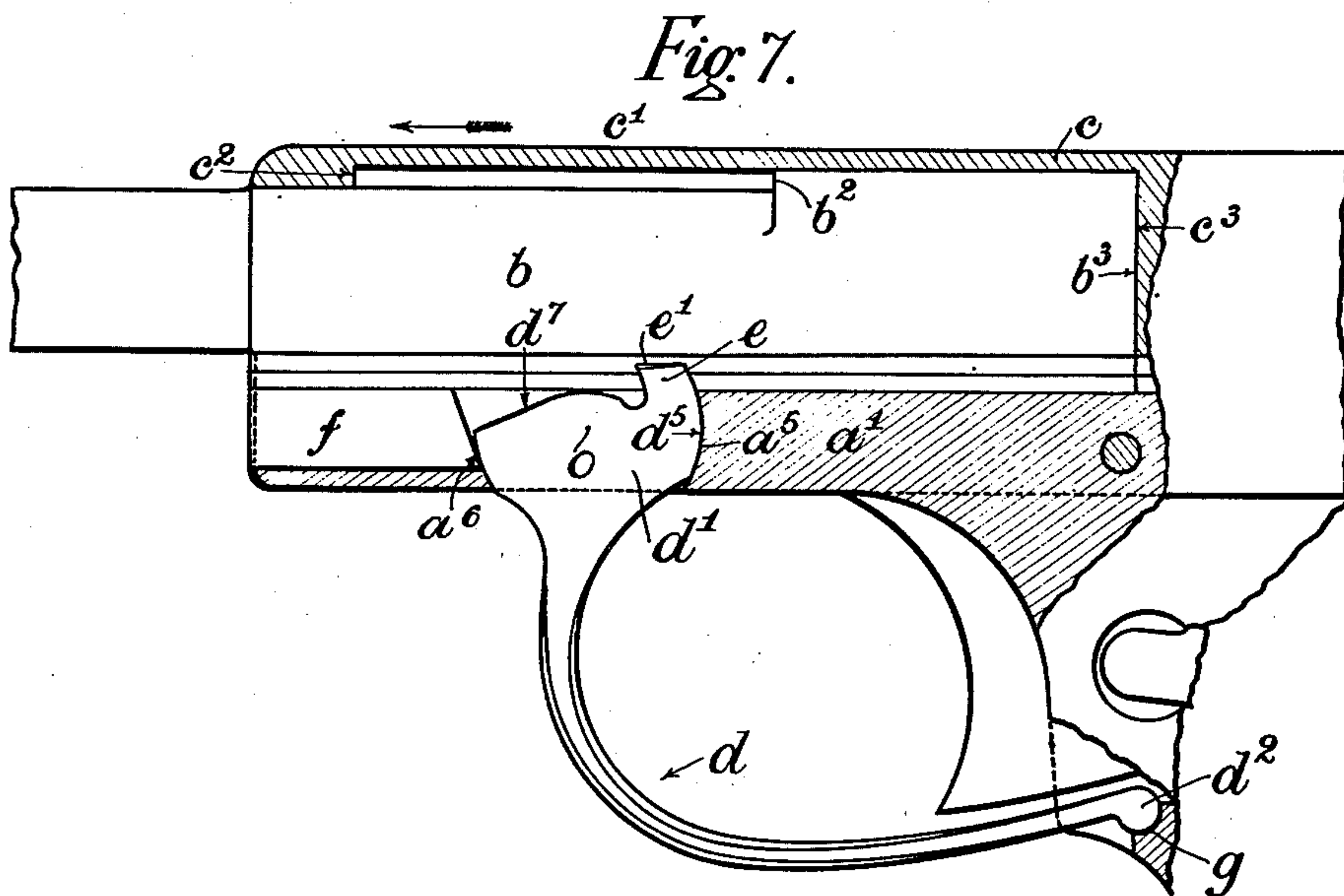
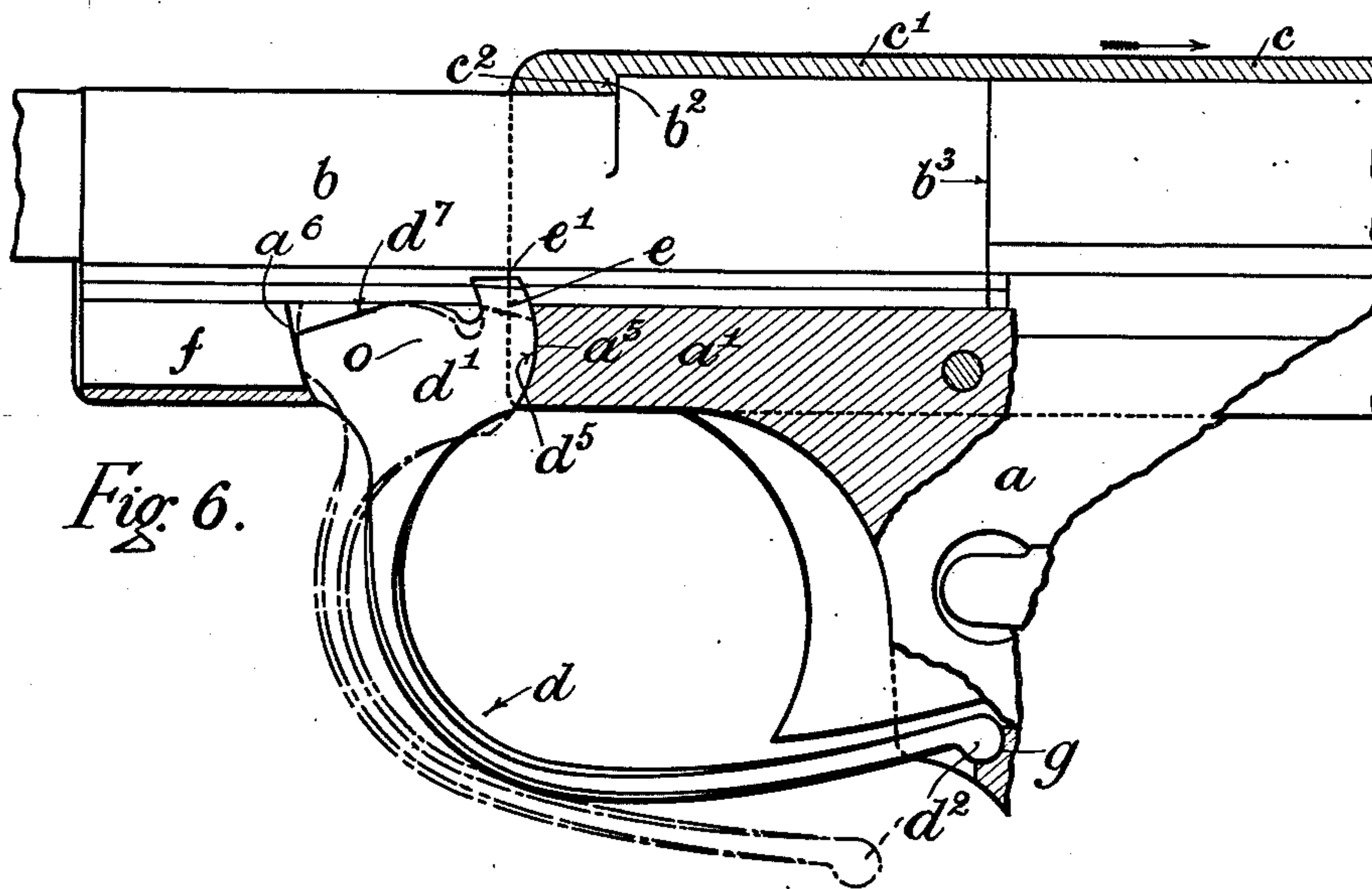
By *James L. Norris*
[Signature]

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WITNESSES

[Signature]
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INVENTOR *William J. Whiting*

By *James L. Norris*
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM JOHN WHITING, OF HANDSWORTH, NEAR BIRMINGHAM, ENGLAND.

AUTOMATIC SMALL-ARM.

936,967.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed April 9, 1909. Serial No. 498,918.

To all whom it may concern:

Be it known that I, WILLIAM JOHN WHITING, a subject of the King of Great Britain, residing at 111 Antrobus road, Handsworth, near Birmingham, England, director of Public Company, have invented certain new and useful Improvements in Automatic Small-Arms, of which the following is a specification.

10 In certain automatic small-arms of the recoiling breech-block type, the rearward or recoiling and return movements of the breech slide are limited by a system of stops and in order to cushion the slide at the opposite ends of its reciprocatory movement, and take the shock or concussion that would otherwise be liable to damage the various parts of the arm, it has been proposed by me, in the specification of my British Letters Patent No. 15982, of 1905 to use a spring trigger-guard which in addition to serving as a cushioning spring for the reciprocating parts, is also utilized as the means of detachably fastening the barrel and breech slide to the body. In the arrangements described in my said former specification, both ends of the spring guard are passed through openings in the body of the arm and engaged with the base of the barrel so that the one end receives and cushions the shocks set up during the recoiling of the breech slide while the other receives and cushions the return or closing shocks and owing to the fact that it is necessary to undercut the slots in the barrel base with which the locking ends of the guard engage, considerable force has to be exercised in withdrawing and re-engaging the interlocking parts in taking down and reassembling the parts of the arm.

40 The object of the present invention is to provide for the fastening and spring cushioning the barrel and breech-slide by improved means which are adapted to positively secure the several parts of an arm to one another but admit of their disengagement by a levering action of the guard upon a special fulcrum part which admits of a levering action without involving any pivoting of the guard to the frame. This result I propose to attain by the provision of a spring trigger guard of which the one end is adapted to engage with the barrel, and the body of the arm to receive both the recoiling and closing shocks, and to form or act as the joint on which the guard makes its levering movement for engaging or disen-

gaging the fastening parts, while the other end is adapted to engage with a seating or bearing in the body into which it is sprung at the conclusion of the levering action, whereby the said guard is tensioned and made operative for maintaining the said ends in their respective engagements and for cushioning the reciprocating parts as hereinafter described.

60 Figure 1 of the accompanying drawings shows one application of the invention to an automatic pistol, the front part of which is drawn in section so as to illustrate the form of the spring trigger guard and of the parts of the barrel and body with which the ends of the said guard are respectively engaged. This view shows the normal positions of the parts. Fig. 2 represents partly in section and partly in elevation, the barrel and spring locking guard, with portions of the breech slide and body, in the positions they assume at the moment of impact of the breech-slide stops against the barrel at the end of the recoiling movement of the said slide. Fig. 3 is a similar view to Fig. 2 but shows the parts in the positions they assume at the moment of impact of the breech slide against the breech face of the barrel on the completion of the return or closing movement of the said slide. Fig. 4 is another view on the same scale as Figs. 2 and 3, but shows the spring guard disengaged from the barrel or in the position in which it admits of the withdrawal of the barrel and breech slide from the body of the pistol. Fig. 5 shows two views of the locking guard separately. Fig. 6 is a sectional view of a part of an automatic pistol showing a somewhat modified form of guard, the breech slide being shown in recoiled position and the dotted lines showing the released position of the guard; and Fig. 7 is a view similar to Fig. 6 showing the breech slide in its forward position.

100 The same letters of reference indicate corresponding parts in the said figures.

The pistol to which the invention is shown applied in these figures is generally of a known construction and comprises a frame or body *a* having a forwardly-extended part *a*¹ which is dovetail-channeled as shown to receive the dovetail-sectioned base *b*¹ of the barrel *b*, while the rearward part of the said frame supports a breech slide *c* whose hood or extension-sleeve *c*¹ carries the usual internal stops *c*² which coöperate with a stop

shoulder b^2 on the barrel for limiting the rearward or recoiling movement of the said slide, while the return or closing movement is limited by the forward end c^3 of the slide impinging against the barrel breech-face b^3 . The breech slide is kept in position upon the body by an ordinary arrangement of guide ribs and grooves or featherways and also by virtue of the engagement of the hood or extension sleeve with the shouldered rear part of the barrel, which is itself fastened within the channeled front a^1 of the said body by means of the locking trigger-guard d .

d^1 is the locking and hinging end of the guard, which also receives and cushions the recoiling and closing shocks to which the various parts of the pistol are subjected during firing, while d^2 is the rearward end, which is adapted to be sprung into a seating in the body after the end d^1 has been engaged with the barrel, and thereby tensions the guard or transforms the same into an active retaining and cushioning spring. The said locking end d^1 has flat opposite sides d^3 , d^4 , and its rearward and forward edges d^5 , d^6 are shaped to curves which are struck from a common center to the same radius, while the forward part a^1 of the body is provided with an opening a^2 , whose shape corresponds to that of the said locking end d^1 inasmuch that it has flat sides and curved rearward and forward parts a^5 , a^6 forming parts of a circle of the same radius as the curves d^5 , d^6 . This opening receives and serves as a seating or bearing wherein the said guard end d^1 is adapted to make a rocking or angular movement when the body of the guard is used as a lever in fastening and unfastening the parts.

The top side of the locking part d^1 is formed, preferably rearward of the point o , corresponding to the center from which the edge curves are struck with a transverse rib or feather e , which is adapted, when the parts are assembled, to engage with a transverse groove recess e^1 in the underside of the base of the barrel. Preferably these parts are of a V-section as shown, but the groove is made rather wider than the rib so as to admit of a little play or relative movement and provide for the cushioning action, as hereinafter described, although the engagement is of such a character as to effectually fasten the barrel in position and prevent its longitudinal displacement upon the body except to the slight extent which is permitted by the spring action of the guard in buffering or cushioning its reciprocating movements.

In addition to their connection by the parts e , e^1 rearward of the center point o , the guard and barrel may have another engagement forward of the said center by providing the forward part of the barrel-base with a rib f , while the front of the

guard end d^1 is recessed out at f^1 to receive the rear portion of the said rib which acts to check or prevent any angular or rocking movement of the joint end of the guard under the impact of the breech-slide and neutralizes the recoiling tendency which exists, at such impact, to jerk the end d^2 of the guard out of its seating, but in order to admit of the angular or rocking movement which the end d^1 within its seating d^2 , when the guard is used as a lever for engaging and disengaging the interlocking parts e , e^1 the bottom of the recess f^1 is inclined so as to provide a clearance, as shown, between the guard and the engaging end of the rib f .

The top side d^7 of the guard end d^1 is curved to a contour such as shown, and when the parts of the pistol are assembled and fastened by the guard, this surface d^7 is made, by the spring of the said guard, to bear against the underside of the barrel base, and the parts e , e^1 are kept in effective engagement as shown in Fig. 1, but the curvature at d^7 admits of the whole guard making its prescribed angular or rocking movement when used as a lever. Or instead of curving the whole of the top as shown, the same effect may be attained by arranging a transverse rib or a rounded stud or other similar bearing or contact piece in the plane of the center o .

As regards the rear end d^2 of the guard, this is formed so that it may be sprung or snapped into the seating g after the locking end has been taken into engagement with the barrel by an upward levering movement of the body of the guard from the unfastened position shown in Fig. 4 to the fastened positions shown in Figs. 2 and 3.

When the guard is in the position shown in Fig. 4, the curved edges of the end d^1 lie upon the corresponding curved surfaces of the seating a^2 and the rib e lies below the bottom of the open-fronted channel in the fore part of the body so that the barrel, with the breech-slide, can either be slid end-wise into place, or removed from the body, as the case may be. But in assembling the parts, the breech slide and barrel are introduced onto the front of the body and slid rearwardly into position in the usual way, thereby bringing the recess e^1 in the barrel-base over the locking rib e of the guard, which lies in the position shown in Fig. 4. By next levering the body of the said guard upward, the end d^1 is caused to turn or rock within its seating a^2 in the direction which will take the rib e into engagement with the recess e^1 , after which the rear end of the guard is snapped or sprung into the seating g . This has the effect of tensioning the guard, or transforming the same into an active spring whose effort is applied in directions that tend to keep the parts e and d^2 in their respective

engagements, so that the barrel and breech slide are effectually locked in place and the guard itself is also secured to the body as shown in Fig. 1. The form of the said end d^2 and its seating g are, however, such that they can be disengaged therefrom by the application of moderate force to the rear portion of the guard so that the various parts can be unfastened without difficulty when necessary.

As the result of the upward thrust of the guard, the joint and fastening end d^1 is normally maintained in the position shown in Fig. 1 in which the curved edges are lifted off the corresponding curvatures of the seating to a sufficient extent to admit of the said end having a little vertical play or movement to provide for the buffering or cushioning of the barrel. Thus, as the breech slide stops e^2 strike against the barrel shoulders b^2 during the recoiling movement of the said slide, the impact, which tends to drive the spring-held barrel also in the rearward direction, is transmitted by the forward inclined side of the recess e^1 to the corresponding inclined side of the rib e , and causes the locking end of the guard to slightly yield or drop within its seating (see Fig. 2) in opposition to upward thrust of the tensioned body of the said guard. This permits of the slight rearward movement of the barrel with the sleeve and provides for the transmission of the impact shocks to the guard whereby they are cushioned or buffered and absorbed in momentarily increasing the spring tension of the same. Immediately the breech slide commences its return movement, the guard re-acts to restore the parts e , e^1 and the barrel to the normal position (Fig. 1) ready to cushion the impact of the said slide against the breech face of the said barrel. This impact is transmitted from the rearward incline of the recess e^1 to the opposed incline e of the rib and is cushioned by the momentary displacement of the end d^1 bending or flexing of the guard as shown in Fig. 3.

The parts are so arranged that at the moment of the cushioning of the recoiling shock, the end of the barrel rib f makes an abutment against the opposed end of the recess f^1 in the guard (see Fig. 2) at a point forward of the center o , and thereby renders it impossible for the said guard to make any angular movement in a direction that would tend to spring the end d^2 out of the seating g under the influence of the force which is applied to the part e at a point behind the said center o .

Figs. 6 and 7 show a part of a pistol having a slightly modified form of guard; the first figure showing the positions of the parts at the moment of cushioning the recoiling movement, while the second figure shows the positions at the cushioning of the closing

impact. Further in Fig. 6 the dotted lines show the unfastened position of the guard. The pistol shown in these figures only differs from that described in Figs. 1 to 5 in the form given to the engaging parts of the guard and barrel, the locking and buffering or fulcrum end d^1 of the former having a rib e which is of a hook-like shape while the barrel recess e^1 is of corresponding form. These parts are retained in positive engagement by the spring action of the guard after the latter has been tensioned by forcing the end d^2 into its seating g in the body, and when the recoiling shocks are transmitted to the forward side of the hooked rib, the tendency is to cause the joint end of the guard to rock or make an angular movement within its seating (see Fig. 7) for momentarily increasing the tension of the spring part of the guard, while the closing shocks are applied to the opposite side of the said rib and tend to rock the guard end in the reverse direction, the cushioning effect being again due to the bending and re-action of the tensioned part.

Owing to the fact that the recoiling shocks act on the fulcrum end of the guard at a point behind the center o , it is desirable that the spring strength of the guard should be sufficient to resist the tendency to lever the end d^2 out of the seating g at the moment of impact.

Any other forms than those shown may be given to the guard-fulcrum and its seating and to the parts of the levering guard that engage with the barrel and with the body, so long as they will admit of the levering and cushioning movements of the said guard fulcrum within such seating as herein referred to.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. In an automatic fire arm, the combination of a frame, a detachable barrel, and a reciprocatory breech slide, of a detachable spring trigger guard having one end formed as a fulcrum in the frame to coöperate with the barrel to cushion the same and retain it in fastened relation to the frame, the guard being capable of a levering movement to permit it to engage or disengage the barrel.

2. In a fire arm, the combination of a suitable frame, and parts detachable with respect thereto, of a trigger guard having a detachable and rocking seat on said frame and capable of locking said detachable part to the frame when said guard is rocked on said seat as a fulcrum.

3. In a fire arm, the combination of a suitable frame having a curved seat, and parts detachable with respect to the frame, of a trigger guard having a fulcrum portion curved to detachably engage said curved seat

in the frame and capable of a rocking movement on said seat to engage or disengage the guard with respect to the said detachable part.

5 4. In an automatic fire arm, the combination of a suitable frame, a barrel detachable with respect thereto, and a reciprocatory breech slide, of a resilient trigger guard having one end fulcrumed on the frame to permit a levering movement and shaped to engage or disengage said barrel by such a levering movement of the guard, said fulcrumed end of the guard having a seat on the frame which will permit sufficient play 10 to cushion the barrel while in fastened or engaged position.

5. In an automatic fire arm, the combination of a frame, a barrel detachable with respect thereto, and a reciprocatory breech 20 slide, of a trigger guard having one end provided with means to engage the barrel and with a fulcrum which is capable of permitting a levering movement of the guard and also a cushioning play with respect to 25 the frame, the opposite end of the guard having a detachable engagement with the frame at a point that will exert a tension on the guard.

6. In an automatic fire arm, the combination 30 of a frame or body, a detachable barrel,

and a reciprocatory breech slide, of a spring trigger guard having a fulcrum on one end provided with curved edges, the body having a seating with correspondingly curved edges to cooperate with those of the guard, the fulcrum end of the guard being shaped to engage or disengage the barrel by a levering movement of the guard and adapted to be retained in such engagement by the tension on the guard. 35 40

7. In an automatic pistol, a frame, a detachable barrel, and a reciprocatory breech slide, of a resilient trigger guard, one end being detachably fulcrumed in a seat formed in the frame and provided with a part to engage or disengage the barrel by a levering movement of the guard, the frame having a relatively fixed seat on the opposite end of the guard for retaining the latter under tension, the fulcrum end of the guard being 45 50 capable of play whereby said guard may fasten the barrel to the frame and serve as a buffer for the barrel.

In testimony whereof I have hereunto set my hand in presence of two subscribing 55 witnesses.

WILLIAM JOHN WHITING.

Witnesses:

HENRY SKERRETT,

HENRY NORTON SKERRETT.