

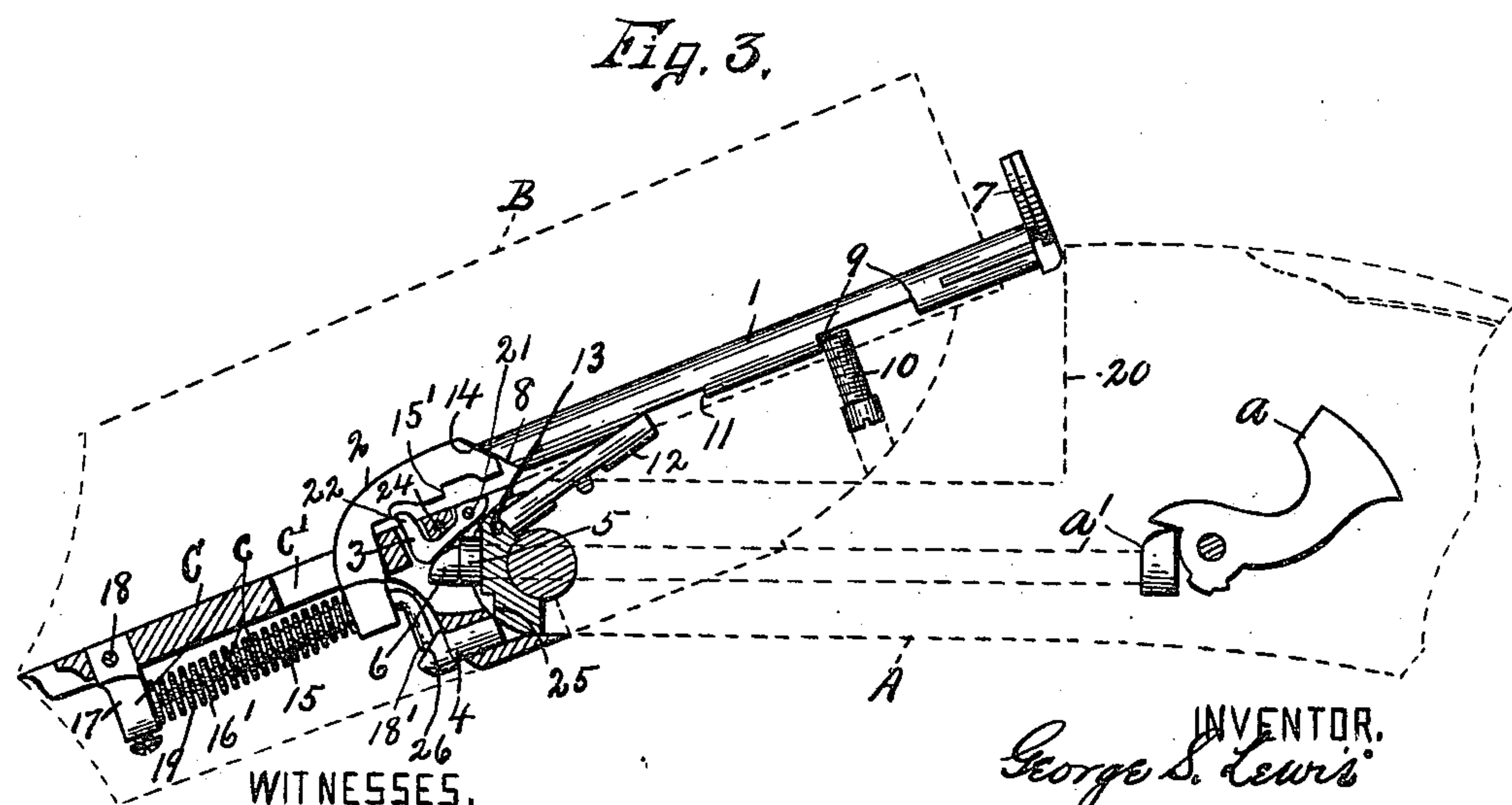
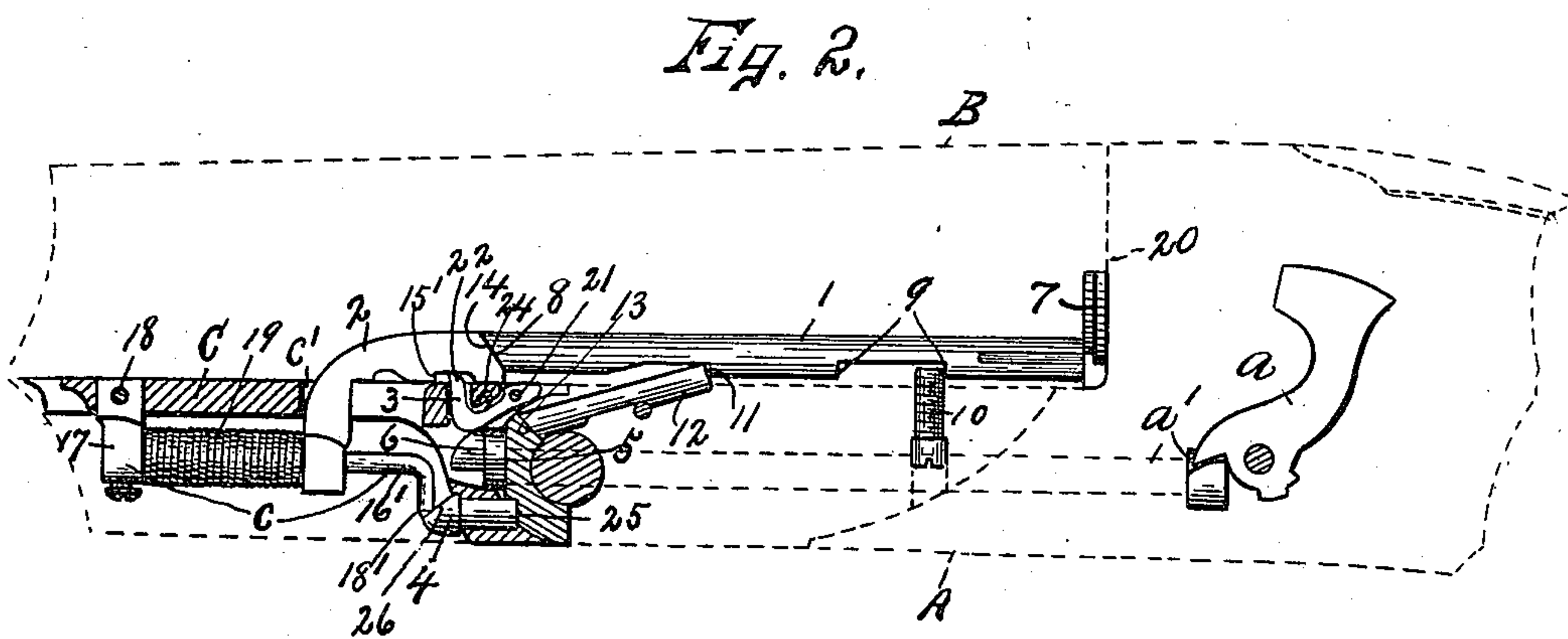
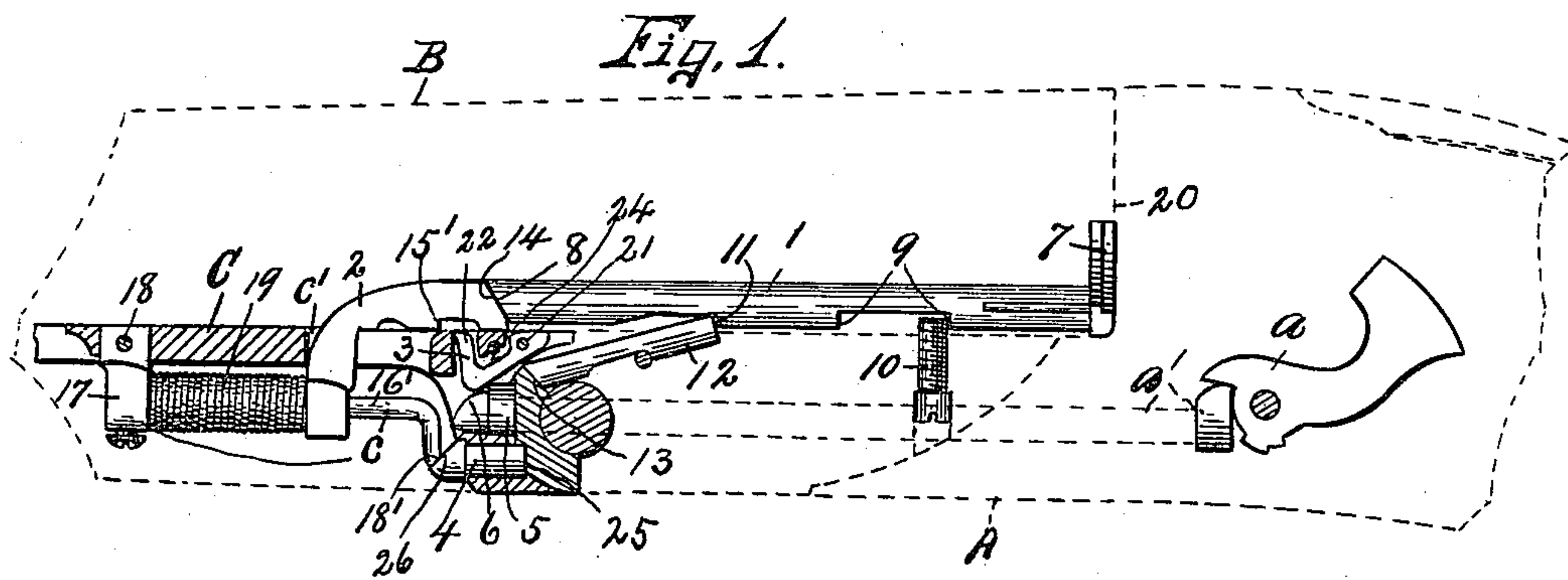
**G. S. LEWIS.**

## EJECTOR MECHANISM FOR BREAKDOWN GUNS.

(Application filed Dec. 3, 1900.)

(No Model.)

**2 Sheets—Sheet 1.**



WITNESSES.

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BY

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ATTORNEYS.

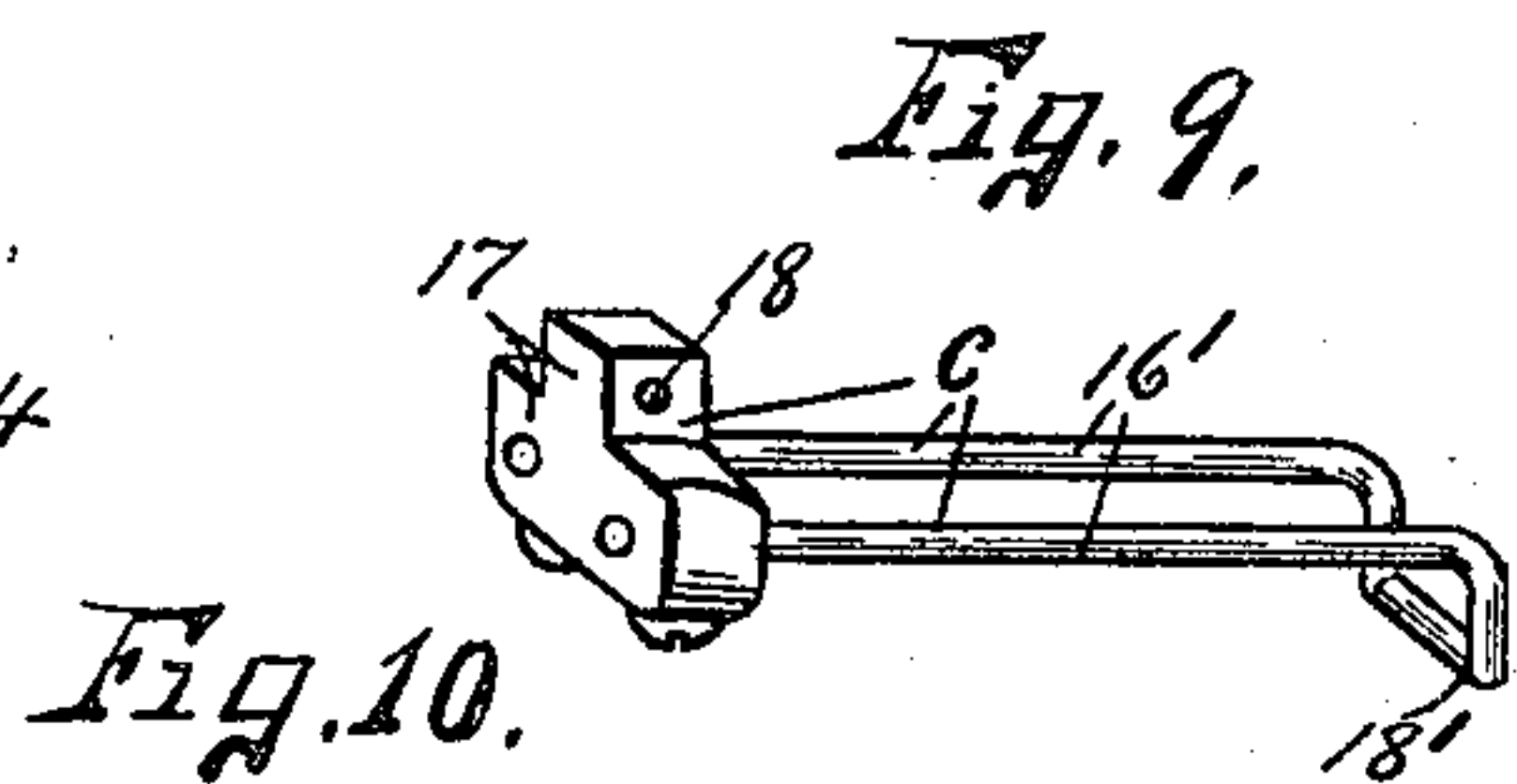
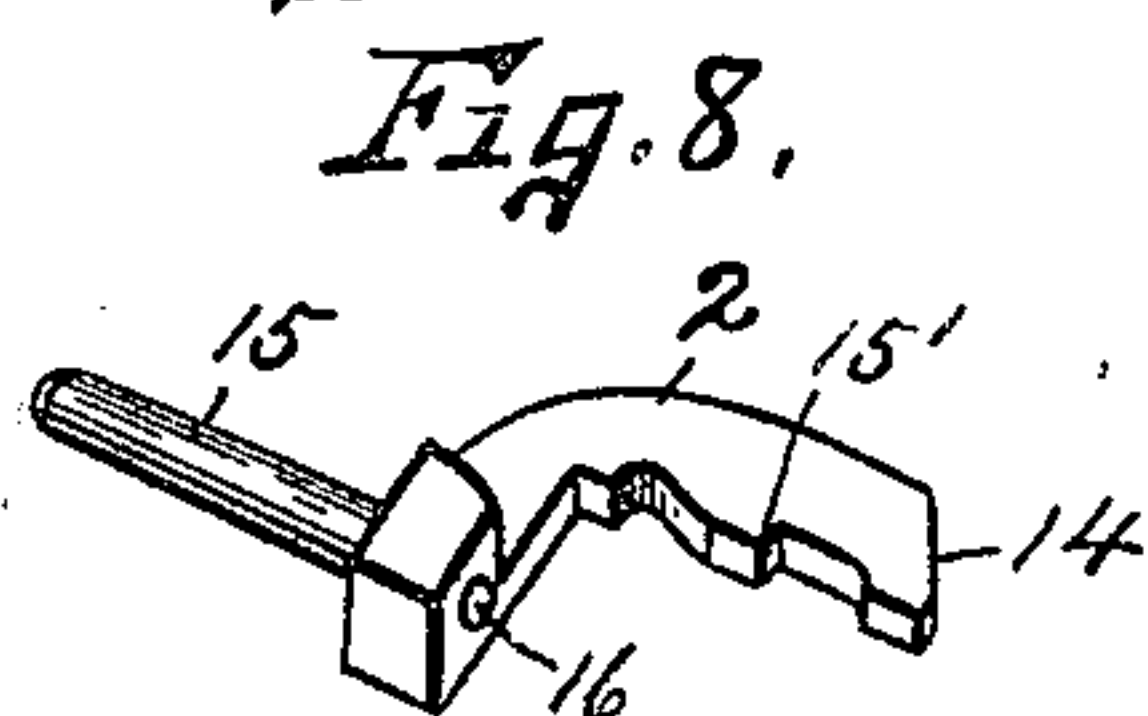
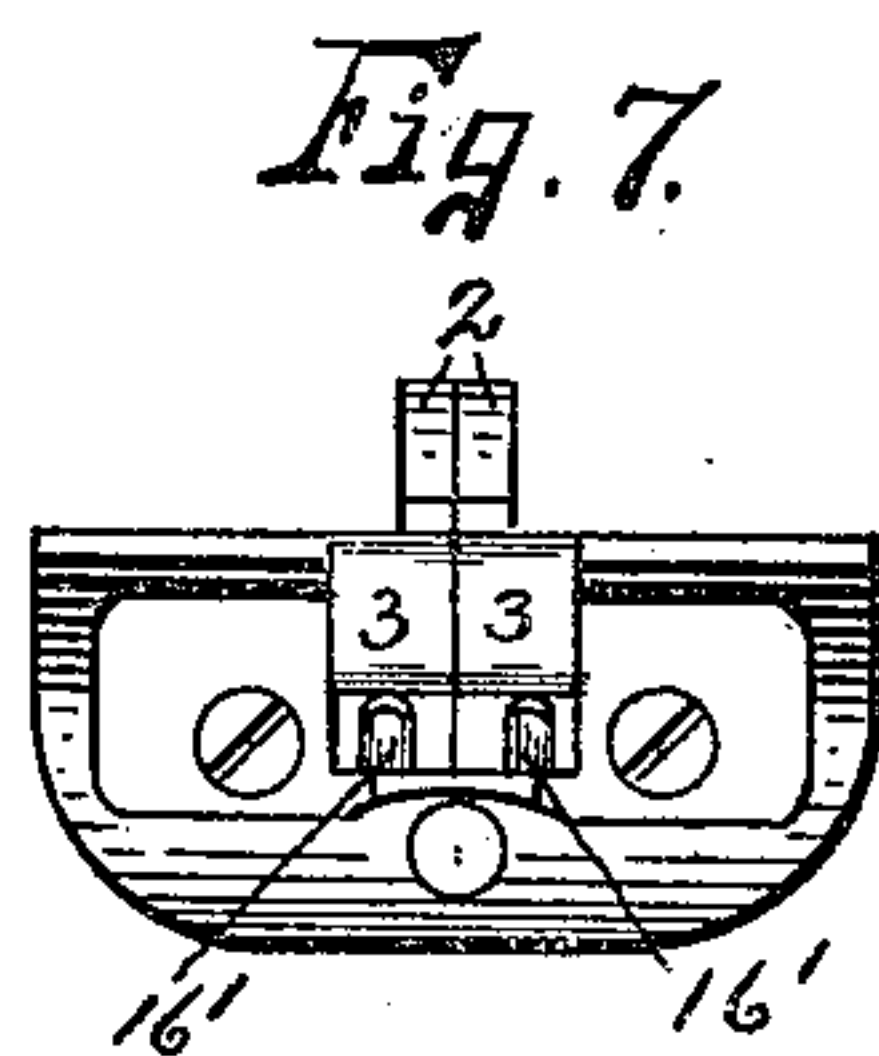
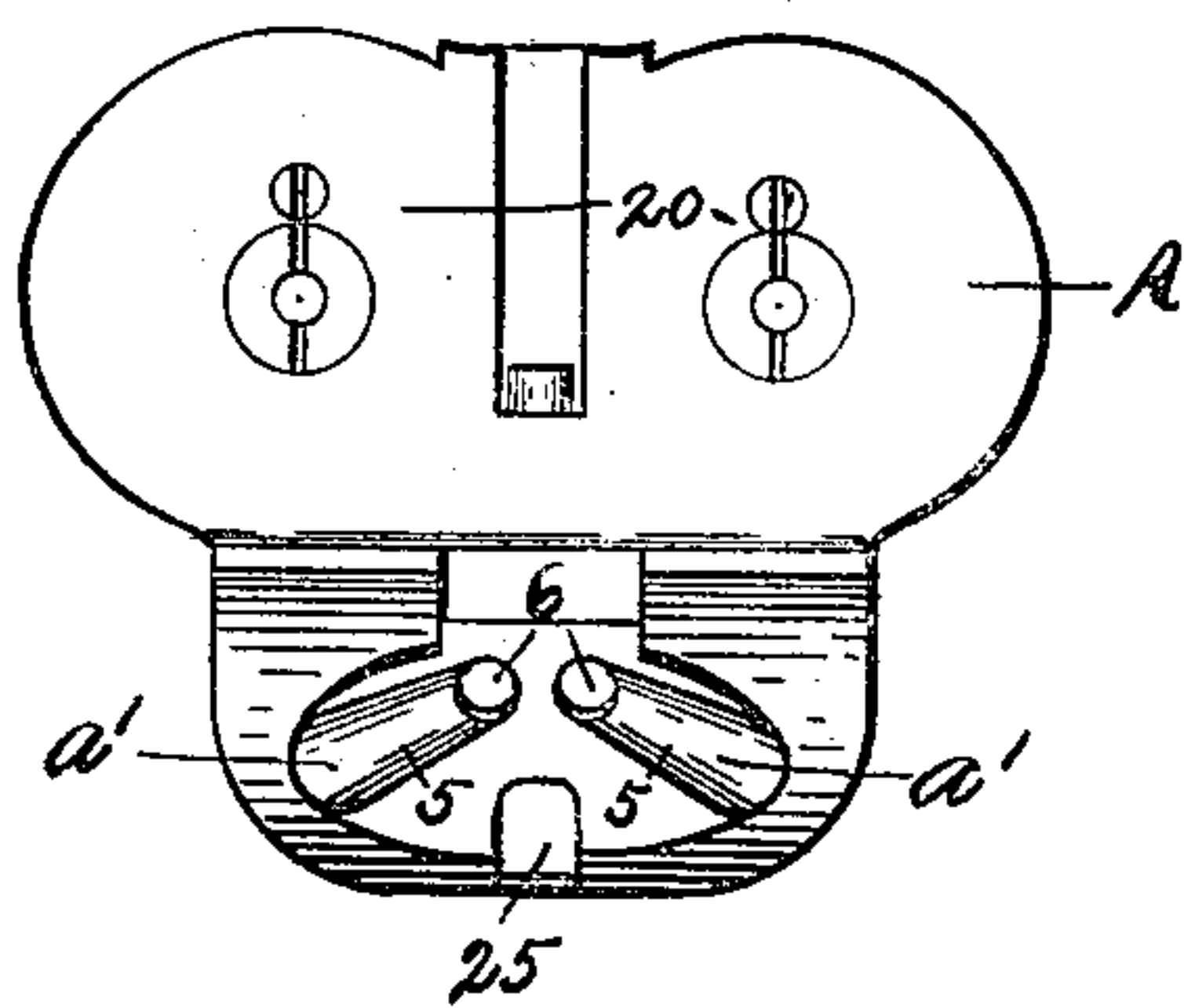
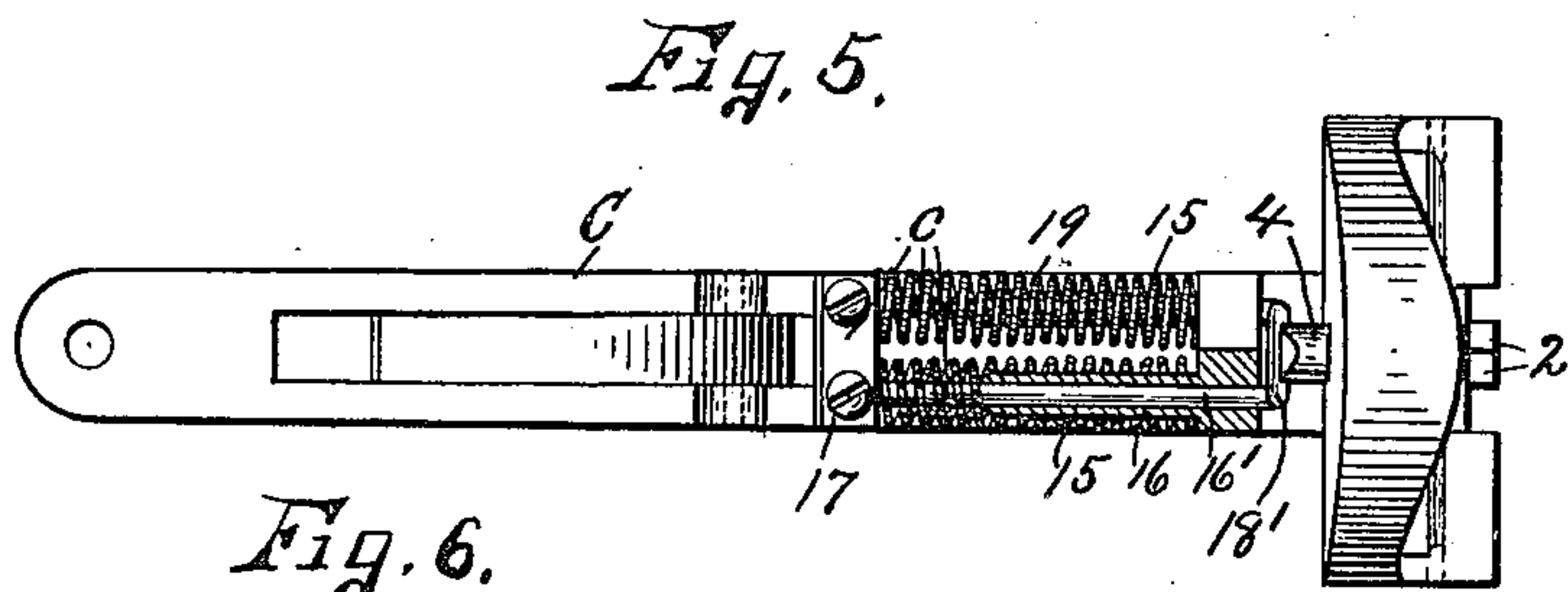
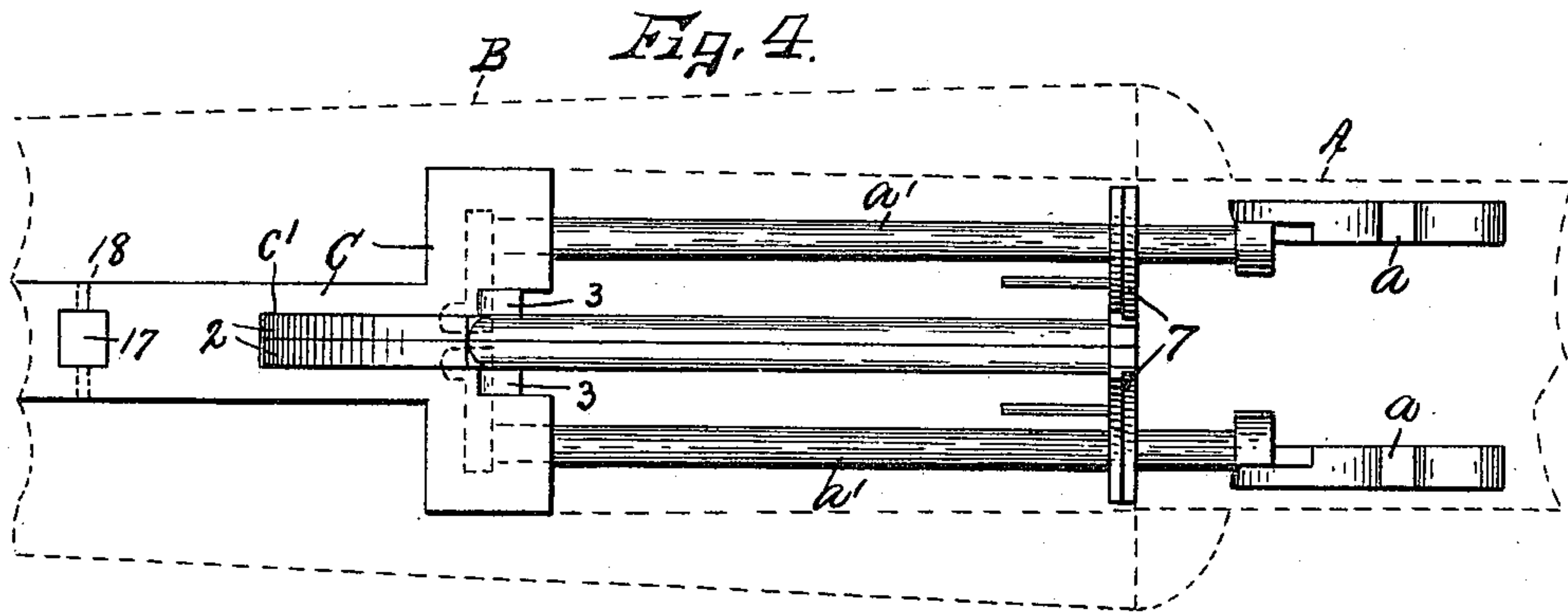
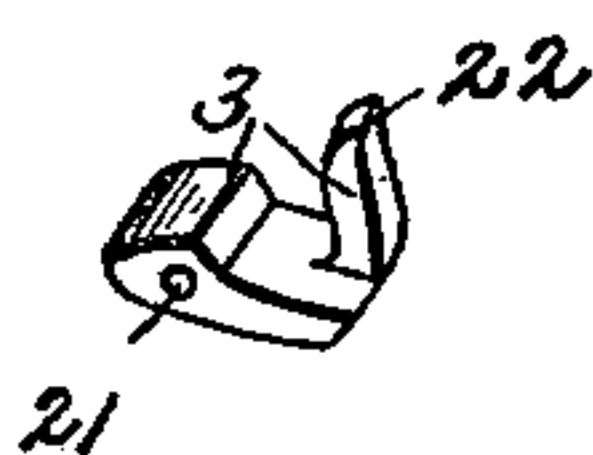
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## EJECTOR MECHANISM FOR BREAKDOWN GUNS.

(Application filed Dec. 3, 1900.)

(No Model.)

2 Sheets—Sheet 2.

*Fig. 10.*

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# UNITED STATES PATENT OFFICE.

GEORGE S. LEWIS, OF FULTON, NEW YORK.

## EJECTOR MECHANISM FOR BREAKDOWN GUNS.

SPECIFICATION forming part of Letters Patent No. 675,334, dated May 28, 1901.

Application filed December 3, 1900. Serial No. 38,455. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE SHERMAN LEWIS, of Fulton, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Breech-Loading Firearms, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in breech-loading guns, and more particularly to ejector mechanisms for extracting the cartridge from the barrel, the object being, first, to provide the gun with a simple and durable mechanism carried by the barrel of the gun for automatically and positively forcing or extracting the cartridge from the barrel; second, to provide spring-actuated means movable in the direction of movement of the extractor-bar, whereby the spring serves to force the extractor-bar outwardly when the gun is open and the extractor-bar serves to compress the spring when the gun is closed, and, third, to provide means controlled by the cocking-bar for holding the spring compressed during a limited movement in opening the gun, and to also provide a suitable mechanism for releasing the spring when the gun is broken beyond said limit.

To this end the invention consists in the combination, construction, and arrangement of the parts of an ejector mechanism, as hereinafter fully described, and pointed out in the claims.

Referring to the drawings, Figures 1, 2, and 3 are side elevations, partly in section, of my improved ejector mechanism, showing the successive operations of said mechanism in extracting the cartridge, portions of the gun frame and barrel being shown in dotted lines. Fig. 4 is a top plan of the parts seen in Fig. 1. Fig. 5 is an inverted plan of the detached fore-end piece and the ejector mechanism mounted thereon. Figs. 6 and 7 are end views, respectively, of the gun-frame and fore-end piece. Figs. 8, 9, and 10 are isometric views, respectively, of the detached operating member, the rocking support therefor, and one of the pawls for controlling the movement of the operating member.

Similar reference characters indicate corresponding parts in all the views.

A and B represent, respectively, the gun

frame and barrel, the gun-frame being provided with the usual hammer *a* and cocking-bar *a'*.

The ejector mechanism, previously referred to, consists, essentially, of an extractor-bar 1, a spring-actuated operating member 2, means 3 for holding the operating member from movement during a limited movement of the barrel in breaking the gun, and additional means 4 for releasing said operating member when the gun is broken beyond said limit.

The hammer *a* may be of any desired form or construction, is held in position by a suitable sear, (not illustrated,) and is moved to its cocked position by the cocking-bar *a'*. This cocking-bar usually consists of a rock-shaft having one end provided with a cam for engaging the hammer and its other end provided with a laterally-projecting arm 5, having a forwardly-projecting shoulder 6, adapted to be engaged by a suitable member provided on the barrel of the gun for rocking the shaft as the gun is broken, and thereby cocking the hammer *a*. The hammer and cocking-bar just described in itself forms no part of my present invention except as the cocking-bar coacts with the ejector mechanism, and it is therefore unnecessary to further illustrate or describe the same.

The ejector mechanism forming the subject-matter of my present invention is carried by the barrel of the gun, as previously stated, and, with the exception of the extractor-bar, is supported entirely upon a removable fore-end piece C. The extractor-bar 1 may be of any desired form or construction, and preferably consists of a lengthwise bar having a grooved head 7 at one end for engaging the cartridge in the usual manner, and its other end is preferably formed with an inclined engaging face 8, the intermediate lower portion of said bar being generally provided with stop-shoulders 9 for engaging the opposite faces of a stop 10, which serves to limit the reciprocating movement of the extractor-bar. In devices of this character it is desirable to relieve the strain upon the mechanism for automatically operating the extractor-bar during the initial movement of the cartridge from the barrel, and I therefore provide the extractor-bar with a suitable abutting shoulder 11, preferably in front of the



shoulders 9, which abutting face is adapted to be engaged by one end of a sliding pawl 12, mounted in the frame of the gun and having its other end engaged with a shoulder 13, also provided on the frame of the gun in proximity to its forward end. It is thus apparent that as the gun is broken the rear end of the sliding pawl engages the abutting face 11 of the extractor-bar during a limited movement of the barrel and forces the extractor-bar a slight distance outwardly for starting the cartridge from the barrel.

The operating member 2 may be supported in any desired manner upon the barrel or fore-end piece C, is reciprocally movable in the direction of the movement of the extractor-bar 1, and preferably consists of a sliding plate or bar mounted upon a rocking support c and having one end provided with an inclined face 14, engaged with the inclined face of the extractor-bar 1 and inclining in substantially the same direction as said inclined face of the extractor-bar, and its other end extended through a slot c', formed in the tang of the fore-end piece, and is provided with a sleeve 15, having a lengthwise aperture 16 for receiving a portion of the rocking support c, upon which the operating member is mounted. This operating member is preferably formed with an engaging shoulder 15', preferably in its lower face adjacent to the upper face of the tang, for engaging a suitable pawl, presently described, which serves to prevent the rearward movement of the operating member during a limited movement in breaking the gun.

The rocking support c for the operating member 2 may be mounted in any desired manner upon the fore-end piece and usually consists of a lengthwise guide 16', having its forward end detachably secured to a supporting-block 17, which is hinged at 18 to the tang of the fore-end piece, the opposite end of the guide 16' being formed with a downturned extremity having an inclined end face 18', adapted to engage a similarly-inclined face of the plunger, also presently described. This guide 16' usually extends in the direction of movement of the extractor-bar and is encircled by a suitable coil-spring 19, interposed between the forward end of the operating member 2 and the adjacent face of the hinged supporting-block 17. This coil-spring 19 also encircles the forwardly-projecting end of the sleeve 15 of said operating member, is normally compressed when the gun is closed, as seen in Figs. 1 and 2, and expands when the gun is broken for automatically moving the operating member 2 and the extractor-bar 1, engaged therewith, rearwardly for the purpose of extracting the cartridge from the barrel.

It is obvious from the foregoing description that the spring 19 is expanded and compressed in the direction of movement of the extractor-bar, that the inclined faces of the operating member and extractor-bar are always in contact with each other, and that when the

operating member is free to move rearwardly by the normal tension of the spring the extractor-bar is gradually forced rearwardly, and therefore only partially withdraws the cartridge. This condition exists at all times when the hammer is in its cocked position. During the closing of the gun the head 7 of the extractor-bar engages the breech-face 20 of the gun-frame and forces the operating member 2 forwardly, thereby compressing the spring 19.

While the mechanism just described is particularly simple and serves to draw the cartridge partially from the barrel, I preferably employ suitable means for holding the spring in its compressed condition during a limited movement in breaking the gun and releasing the spring when the gun is broken beyond said limit. The means for holding the spring from forcing the operating member 2 rearwardly during said limited movement of the barrel preferably consists of the pawl 3, hinged at 21 to the rear end of the fore-end piece and having its forward end provided with an engaging shoulder 22, movable into and out of the path of the shoulder 15' of the operating member, previously mentioned. The shoulder 22 is normally out of the path of movement of the shoulder 15' when the hammer is in its cocked position and is held in this position by a suitable spring 24, interposed between the adjacent faces of said pawl and the fore-end piece. When the gun is fired and the hammer is moved to the position seen in Fig. 2, the forward end 6 of the cocking-bar a' is forced into engagement with the pawl 3, thereby moving the shoulder 22 into the path of the shoulder 15', and as the gun is broken, as seen in Fig. 3, the shoulder 22 engages the shoulder 15' and prevents the rearward movement of the operating-piece by the spring 19 during a limited movement of the barrel upon the gun-frame. The means for releasing the operating member when the gun is broken beyond said limit consists of a plunger 4, having its rear end engaged with the front end face 25 of the gun-frame and its forward end provided with an inclined face 26, in contact with the engaged face 18' of the support c. As the barrel continues to move upon the gun-frame to the position seen in Fig. 3, the plunger 4 is forced forwardly by the shoulder or face 25 and the inclined face 26 rides upon the adjacent face of the support c and rocks said support upon the pivot 18, thereby forcing the shoulder 15' out of engagement with the shoulder 22, whereupon the compressed spring 19 instantly expands and simultaneously, in conjunction with the inclined face of the plunger 4, moves the operating member lengthwise and transversely of the extractor-bar 1. The spring 19 being thus free to act upon the operating member 2 forces the extractor-bar a greater portion of its movement, and the transverse movement of the inclined face 14 across the inclined face 8 of the extractor-



bar causes additional movement of said extractor-bar. It is therefore evident that the instantaneous release of the operating member, together with the inclined faces 8 and 14, imparts an instantaneous and forcible movement to the extractor-bar, which throws the blank cartridge a considerable distance from the barrel.

The operation of my invention is as follows:

When the hammer is in its cocked position and the barrel is closed upon the gun-frame, the pawl 3 remains out of the path of the shoulder 15' and the spring 19 is compressed by the extractor-bar and the operating member engaged therewith. When the hammer is fired to the position seen in Fig. 2, the cocking-bar *a'* is actuated and forces the pawl 3 into the path of the shoulder 15'. As the gun is broken to the position seen in Fig. 3, the sliding pawl 12 first engages the shoulder 11 of the extractor-bar and moves said bar a slight distance outwardly for starting the cartridge. During further movement of the barrel a limited distance the shoulder of the pawl 3 remains in contact with the shoulder 15'. When the barrel is moved beyond said limit, the plunger 4 rocks the support *c*, as previously described, and forces the shoulder 15' out of engagement with the shoulder 22 of the pawl 3, whereupon the spring 19 and inclined face 14 force the extractor-bar to the limit of its outward movement, and at the same time the lower face of the pawl 3 engages the arm 6 of the cocking-bar and returns the hammer to its cocked position, as clearly seen in Fig. 3. When the gun-barrel is returned to its closed position, the head 7 of the extractor-bar engages the breech-face 20 of the gun-frame and automatically forces the operating member forwardly for compressing the spring and holds said operating member and spring in this position when the gun is closed.

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 some change may be made in the detail construction and arrangement of the parts of my invention without departing from the spirit thereof. 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 breech-loading gun, an ejector mechanism comprising an extractor-bar, and reciprocatingly-movable spring-actuated means pivotally mounted on the fore-end piece and engaged with the extractor-bar for forcing said bar outwardly as the gun is broken.

2. In a breech-loading gun, the combination with a removable fore-end piece and the breech-face of the gun-frame, of a spring-actuated member pivotally mounted on the fore-end piece, and an extractor-bar mounted on

the barrel and interposed between the breech-face and said member.

3. In a breech-loading gun having a removable fore-end piece, an ejector mechanism comprising an extractor-bar, a rocking member pivotally mounted on the fore-end piece and having an inclined face engaged with the extractor-bar, and means for rocking said member as the gun is broken for the purpose described.

4. In a breech-loading gun having a removable fore-end piece, an ejector mechanism comprising an extractor-bar, and a rocking member pivotally mounted on the fore-end piece and having engaged end faces inclining in the same direction, and means for rocking said member as the gun is broken for forcing the extractor-bar outwardly.

5. In a breech-loading gun, an ejector mechanism comprising an extractor-bar and a rocking support, an operating member mounted on the support and having an inclined engaging face engaged with the extractor-bar, said operating member having a sliding movement on the support, and independent means for rocking the support and sliding the operating member as the gun is broken for moving the extractor-bar.

6. In a breech-loading gun, an ejector mechanism comprising an extractor-bar, a rocking support mounted on the fore-end piece of the gun, a reciprocatingly-movable operating member guided on the support and engaged with the extractor-bar, a spring for moving said member in one direction for forcing the extractor-bar outwardly as the gun is broken, and a plunger interposed between the frame of the gun and the rocking support for rocking said support as the gun is broken.

7. In a breech-loading gun, an ejector mechanism comprising an extractor-bar, a rocking support having a guide or way extending in the direction of said bar, a spring-actuated member reciprocatingly movable on said guide or way for the purpose described and provided with an inclined face engaged with a similar face on the extractor-bar, and means for rocking the support as the gun is broken.

8. The combination with the frame and barrel of a breech-loading gun, of an ejector mechanism comprising an extractor-bar, a rocking support carried by the fore-end piece and provided with a lengthwise guide and an engaging shoulder, an operating member mounted on the guide and engaged with the extractor-bar for the purpose described, and a spring interposed between said shoulder and operating member.

9. The combination with the frame and barrel of a breech-loading gun, of an ejector mechanism carried by the barrel and comprising an extractor-bar, an operating member pivotally mounted on the fore-end piece and having independent sliding and rocking movements, a spring and the extractor-bar serving to effect the sliding movement, and means engaged with the frame of the gun for rock-



ing the operating member for the purpose described.

10. The combination with the frame and barrel of a breech-loading gun, of an ejector mechanism carried by the barrel and comprising an extractor-bar, a spring-actuated operating member pivotally mounted on the fore-end piece and engaged with the extractor-bar and having independent sliding and rocking movements, said sliding movement being effected by the spring and the extractor-bar, means for engaging the operating member and holding the spring compressed during a limited movement in breaking the gun, and additional means for releasing said operating member when the gun is broken beyond said limit.

11. The combination with the hammer and cocking member of a breech-loading gun, of a removable fore-end piece, an extractor-bar, a spring-actuated operating member pivotally mounted on the fore-end piece and engaged with the extractor-bar for the purpose described, means actuated by the cocking-bar for holding said member from movement during a limited movement in breaking the gun, and additional means for releasing the operating member when the gun is broken beyond said limit.

12. The combination with the hammer and cocking member of a breech-loading gun, an ejector mechanism carried by the barrel and comprising an extractor-bar, a rocking support having a lengthwise guide, a reciprocatingly-movable operating member mounted on the guide and having one end engaged with the extractor-bar, a spring engaged with the opposite end of the operating member, a pawl actuated by the cocking member when the

gun is fired for engaging the operating member and holding the same against the action of the spring during a limited movement in breaking the gun, and a plunger interposed between the gun-frame and said support for rocking the support and releasing the operating member when the gun is broken beyond said limit.

13. In a breech-loading gun, the combination with a hammer and cocking-bar of a removable fore-end piece, an extractor-bar, a spring-actuated operating member pivotally mounted on the fore-end piece and engaged with the extractor-bar, said member being movable endwise, and means controlled by the cocking-bar for engaging said member and controlling the action of the spring.

14. In a breech-loading gun, the combination with the hammer and cocking-bar, an ejector mechanism mounted on the barrel of the gun and comprising an extractor-bar, a rocking support, an operating member reciprocatingly mounted on the support and engaged with the extractor, a spring for forcing the operating member against the extractor-bar, means controlled by the cocking-bar for preventing the action of the spring as the gun is broken, and a plunger having one end engaged with the frame of the gun and its other end provided with an inclined face engaged with the rocking support for the purpose described.

In witness whereof I have hereunto set my hand this 5th day of November, 1900.

GEORGE S. LEWIS.

Witnesses:

H. E. CHASE,  
MILDRED M. NOTT.