

June 19, 1923.

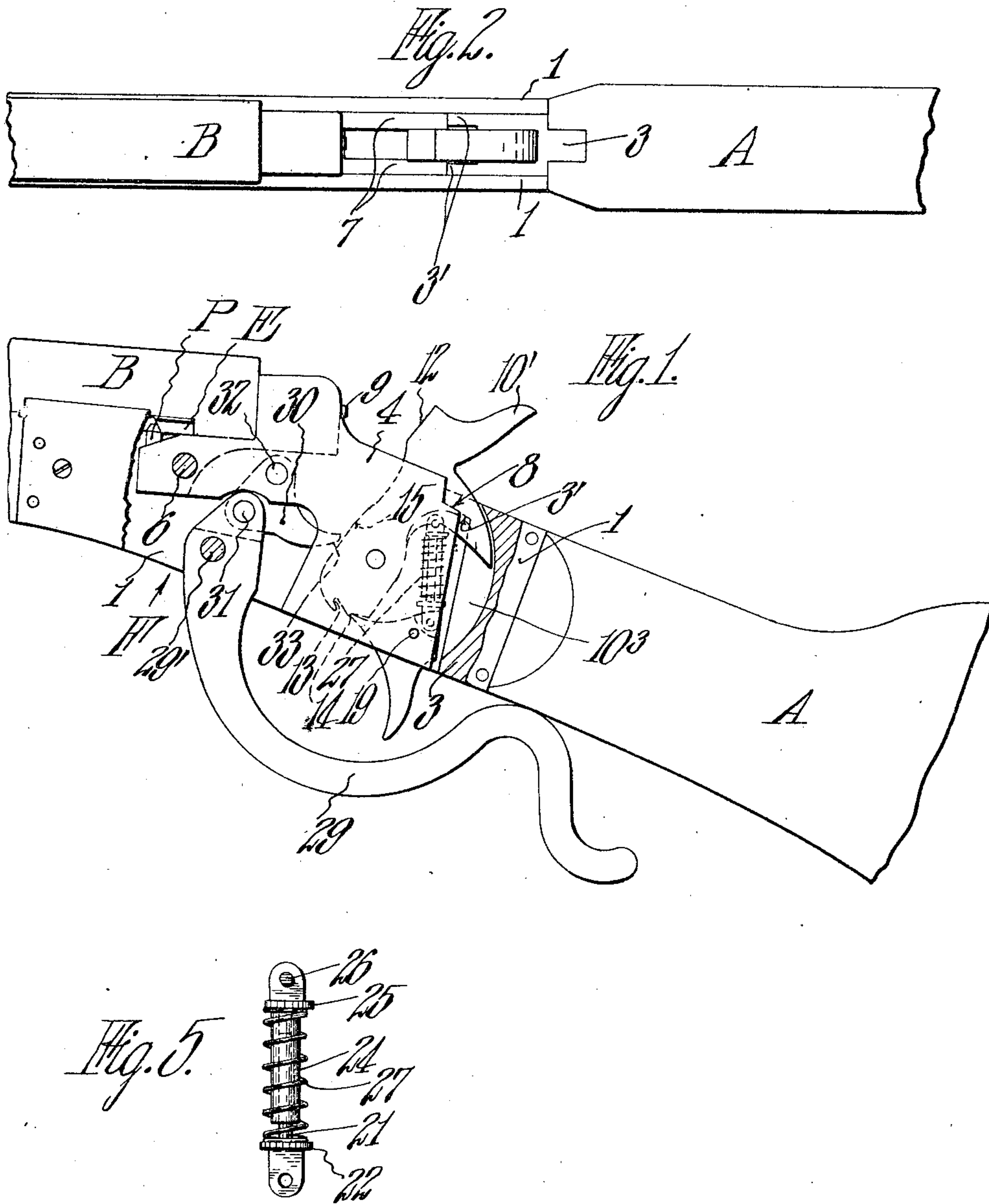
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G. S. LEWIS

FIREARM

Filed April 30, 1921

2 Sheets-Sheet 1



INVENTOR

George S. Lewis.
BY *Chapin & Neal*
ATTORNEYS

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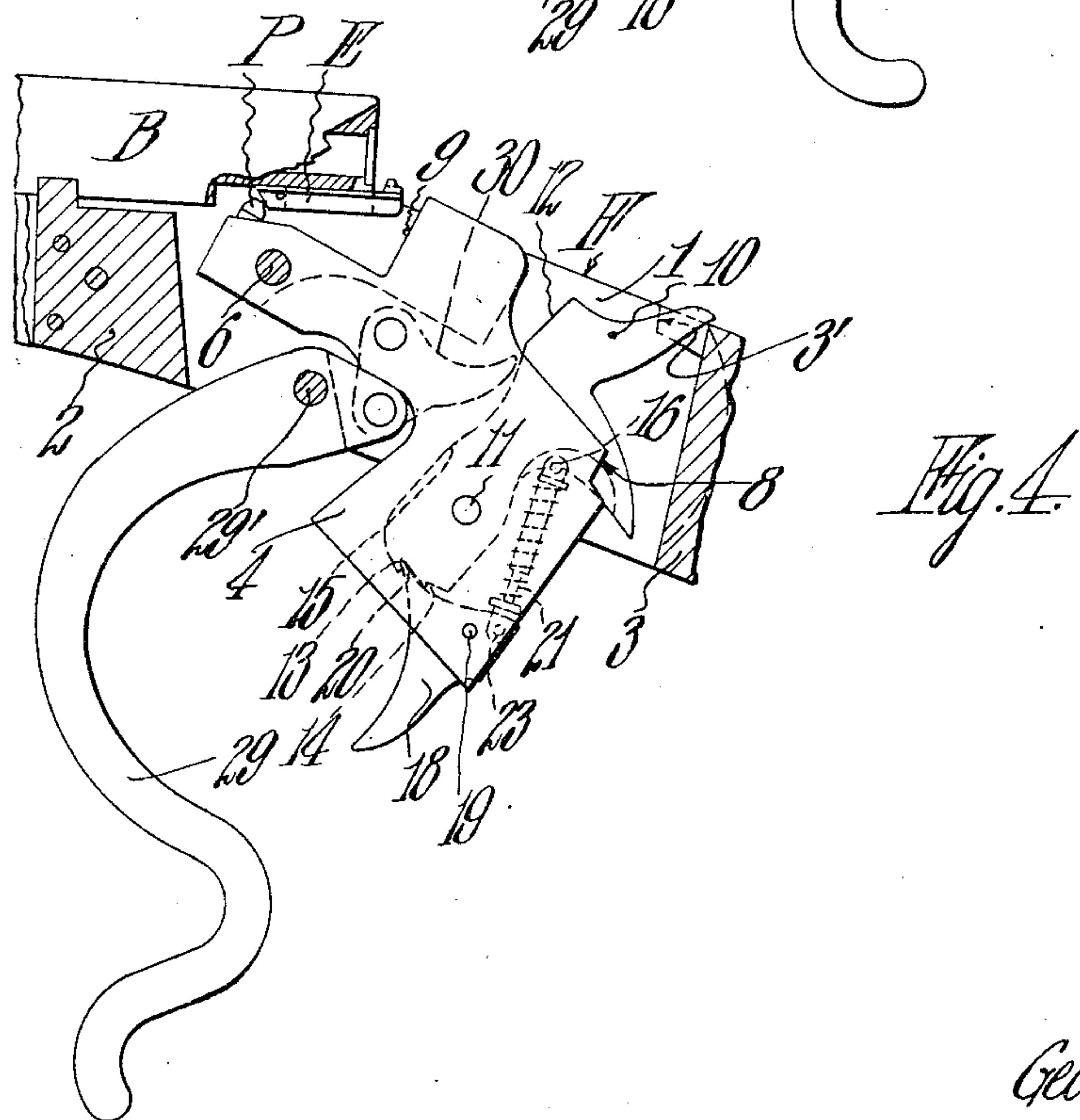
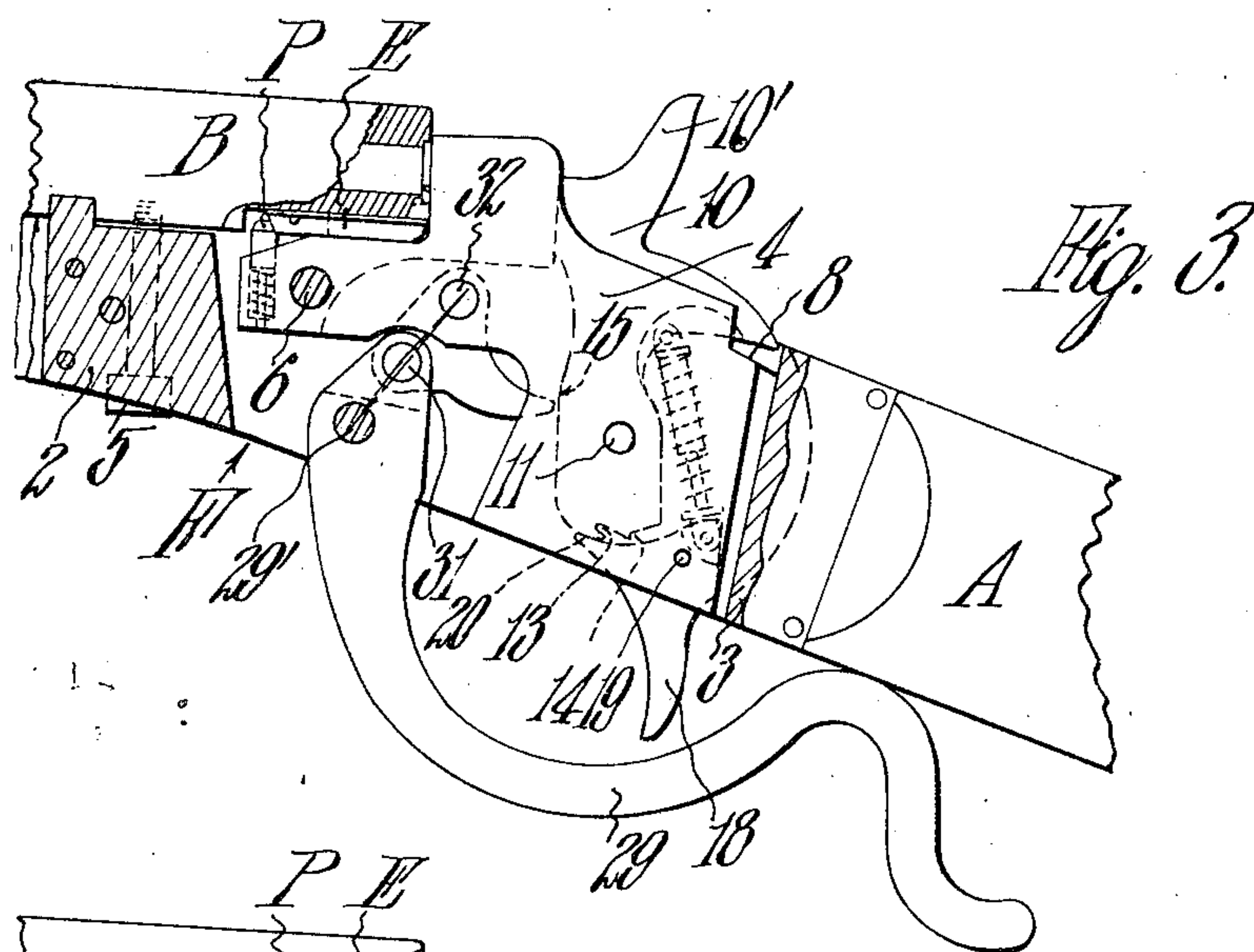
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ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE S. LEWIS, OF CHICOPEE FALLS, MASSACHUSETTS, ASSIGNOR TO PAGE-LEWIS ARMS COMPANY, OF CHICOPEE FALLS, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

FIREARM.

Application filed April 30, 1921. Serial No. 465,633.

To all whom it may concern:

Be it known that I, GEORGE S. LEWIS, citizen of the United States, residing at Chicopee Falls, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Firearms, of which the following is a specification.

The invention relates to an improvement in breech-loading firearms and has for its object to improve, simplify and cheapen the construction of the same whereby a gun of high class functioning character may be provided for boys at a reasonable price.

Among the several objects of the invention is to provide a simple form of spring-actuating mechanism for the hammer and trigger and so arranged that a single spring will suffice for actuating both the hammer and trigger.

For the purpose of further simplifying the construction, the breech-block is designed to carry the movable elements of the firing mechanism and is itself removable as a self-contained structure from the receiver or frame of the gun. The receiver accordingly may be formed of plain side and end walls, requiring a minimum amount of machine work and so coordinated with the elements of the breech-block mechanism that it will be impossible to cock the gun with the breech-block open and impossible to open the breech with the gun cocked, an important safety feature in a gun of this type.

Further objects and advantages of the invention will become apparent from the following specification and accompanying drawings, which show the preferred embodiment of the invention, and in which,—

Fig. 1 is a side-elevational view, partly in section, of a firearm embodying my invention and showing the hammer and trigger in full-cocked position;

Fig. 2 is a top plan view of that part of the firearm shown in Fig. 1;

Fig. 3 is a view similar to Fig. 1 showing the hammer in its down-position;

Fig. 4 is a similar view with the breech-block in its open position and the hammer and trigger in half-cocked positions; and

Fig. 5 is an elevational view of the spring-actuating means for the hammer and trigger.

Referring to the drawings, the frame F comprises side plates 1 spaced apart by filler members 2 and 3 to form a receiver. The

side plates and filler members are secured together by rivets or the like and provide a frame to receive the breech-block 4 which is pivoted thereto at 6. A indicates the stock of the gun and B the barrel, the latter being supported by the frame F at the forward end thereof and removably secured thereto in the usual manner, as by the screw 5. A reciprocating extractor E mounted in the barrel is adapted to be engaged by a spring-pressed plunger P carried in the breech-block 4, whereby a shell is extracted from the barrel when the breech-block is moved to its open position, as shown in Fig. 4.

The pivoted breech-block 4 fits snugly between the side plates 1 of the frame F and is hollowed out between its side faces 7, within which the firing mechanism is contained. Notches 8, provided in the upper corner of the breech-block 4, are adapted to abut angularly-disposed shoulders 3' of the filler member 3 of the frame when the breech-block is closed and thereby both limit the closing position of the breech-block and also support the breech-block against the recoil during firing.

The hammer 10, having the usual cocking comb 10', is pivoted between the sides of the breech-block 4 at 11, and has a striker-face 12 for impact against firing-pin 9. The lower side of the hammer is provided with safety half-cock and full-cock notches 13 and 14. A semi-circular notch 16 is provided in the under side of the hammer adapted to receive and furnish a pivotal bearing for an end of the actuating mechanism, see Fig. 4. The trigger 18 is also carried between the sides of the breech-block 4 and is pivoted at 19 as indicated. The trigger 18 is provided with a sear end 20 that is adapted to engage either of the notches 13 or 14 of the hammer to hold the hammer 10 in its half or full-cocked positions when held in engagement therewith by the spring-actuating means now to be described.

The spring-actuated means functions both as a hammer spring and as a trigger spring and comprises a plunger 21 that is pivotally carried by the trigger 18 and is provided with a flange 22, as shown. A tube 24 telescopes upon the plunger 21 and is provided with a flange 25 similar to that of the plunger 21. The upper end of the tube is provided with a pivot-pin 26 adapted to in-

terfit and rock in the recess 16 of the hammer 10. A coiled spring 27 encircles the tube 24 and plunger 21 for compression between the flanges 22 and 24. The spring 27 tends to swing the hammer 10 and trigger 18 in opposite directions on their respective pivots and functions to hold the sear end 20 of the trigger in engagement with either one of the cocking notches of the hammer 10 when the hammer is half or full cocked. The spring 27 also functions to actuate the hammer against the firing-pin when the same is released from its engagement with the trigger.

The interslidable tube 24 and plunger 21 serve as a supporting guide for the spring 27 during the compression thereof, and also functions to limit the movement of the hammer in the cocking direction. That is, as the hammer is moved to a full-cocked position, the tube is reciprocated upon the plunger and is preferably of a length to abut the flange 22 of the plunger as the hammer notch 14 is moved slightly past the sear end of the trigger. The abutment of the tube 24 and flange 22 prevents a further movement of the hammer and also insures the sear end of the trigger engaging with the cocking notch of the hammer. The spring-actuating mechanism as will be seen is supported wholly by the hammer and trigger within the movable breech-block, whereby the latter as a whole with the complete firing mechanism contained therein may be removed from the receiver or frame of the gun. This construction simplifies both the manufacture and assembly of the parts.

The operating lever 29 is pivoted at 29' between the side plates of the frame F and is formed in the shape of the usual trigger guard. Its upper end is slotted and a cam link 30 is pivotally connected therein as at 31. The cam-link 30 is pivotally connected at 32 between the side members of the breech-block 4, as best shown in Figs. 1, 3 and 4. The axes of the pivots 29', 31 and 32 are preferably disposed in such a manner that, when the breech-block 4 is moved to its closed position and the lever 29 abuts the stock A, as in Figs. 1 or 3, the pivot 31 is located at the left of a straight line connecting the pivots 29' and 32, as indicated in Fig. 3, thus forming a toggle-lock to retain the breech-block closed during the recoil of firing. The shoulders 8 of the breech-block at this time are also in abutment with the shoulders 3' of the frame F and thus further support the breech-block in its locked position. The forward side of the hammer has a cam surface 15 for being engaged by the rear projection of cam link 30 during the opening movement of the breech-block to swing the hammer into half-cocked position, as shown in Fig. 4. By reference to Fig. 1, it will be observed that the rear filler member 3 is cut with a curved recess 10^s to provide a clearance for

the cocking of the hammer when the breech-block is in closed position. This clearance is such and the pivots of the hammer 10 and breech-block 4 so coordinated therewith that the breech-block cannot be swung open far enough to insert a cartridge in the chamber of the barrel B when the hammer is in cocked position (see Fig. 1). For similar reasons, the hammer 10 cannot be cocked when the breech is wide open (see Fig. 4). In this way, a safety feature for the gun is provided.

Assuming the gun to have just been fired, leaving the parts in the position shown in Fig. 3, the operation of the mechanism is as follows: The operating lever 29 is swung in a downward direction and the cam link connecting the lever and breech-block causes the breech-block to swing on its pivot to the open position shown in Fig. 4. During the opening movement of the breech-block the cam-shaped nose 33 of the link 30 engages the cam surface 15 of the hammer and forces the hammer backwardly a sufficient distance for the sear end 20 of the trigger to be forced into the safety half-cock notch 13 of the hammer by the action of the spring 27. Also, during the opening movement of the breech-block, the extractor E of the barrel is actuated by the pin P and a cartridge shell is ejected from the barrel. While the breech-block is in its open position shown in Fig. 4, a new cartridge may be inserted in the barrel. To close or lock the breech, the lever 29 is raised, thus swinging the breech-block upwardly where its shoulders 8 are in an abutment with the shoulders 3' of the frame F and the toggle-link 30 is carried to its locked position. The hammer has remained in its half-cocked position during the locking or closing of the breech-block and may then be moved toward its full-cocked position in the usual manner by pressing on the comb 10' until the sear end 20 of the trigger is caused to engage the full-cock notch 14 of the hammer by the action of the spring 27. Then, when the trigger is pulled, the hammer is released and is actuated by the spring 27 against the firing-pin.

It will be understood that various modifications and changes from the specific construction shown and described may be made without departing from the full scope of the invention as hereinafter claimed.

What I claim is:

1. In a firearm in combination, a hammer and a trigger arranged for interengagement in cocked positions, means interposed between and wholly supported by the hammer and trigger for actuating the said hammer and trigger and to limit the cocking movement of said hammer.

2. In a firearm in combination, a hammer and a trigger arranged for interengagement

in cocked positions, means interposed between and wholly supported by the hammer and trigger for actuating the said hammer and trigger and to limit the cocking movement of said hammer, said means comprising a single coil spring supported by an intersliding plunger and tube having abutting shoulders.

3. In a firearm in combination, a frame, a breech-block movably mounted in said frame and containing within the same a pivoted hammer, a pivoted trigger, and a means interposed between the hammer and trigger for performing the double function of a hammer spring and a trigger spring, and to limit the cocking movement of said hammer.

4. In a breech-loading firearm in combination, a frame comprising side plates riveted at its ends to filler-blocks for forming a receiver, a breech-block pivoted to said frame within said receiver, a pivoted hammer and a pivoted trigger both mounted in said breech-block, spring-actuating means

for said hammer and trigger supported wholly within said breech-block, and a trigger-guard lever pivoted to said frame and having a toggle-link connection with said breech-block for locking the same in closed position.

5. In a breech loading firearm in combination a receiver, a breech block pivoted in said receiver, a hammer and trigger pivoted in the breech block and arranged for engagement in a safety cocked position, a trigger guard pivoted in the receiver, a toggle connection between the guard and breech block, whereby a swinging movement of the guard will open or close the breech block and means carried by the toggle connection that is adapted to engage the hammer during the opening movement of the block and move the said hammer into interengagement with the trigger in its safety-cocked position.

In testimony whereof I have affixed my signature.

GEORGE S. LEWIS.