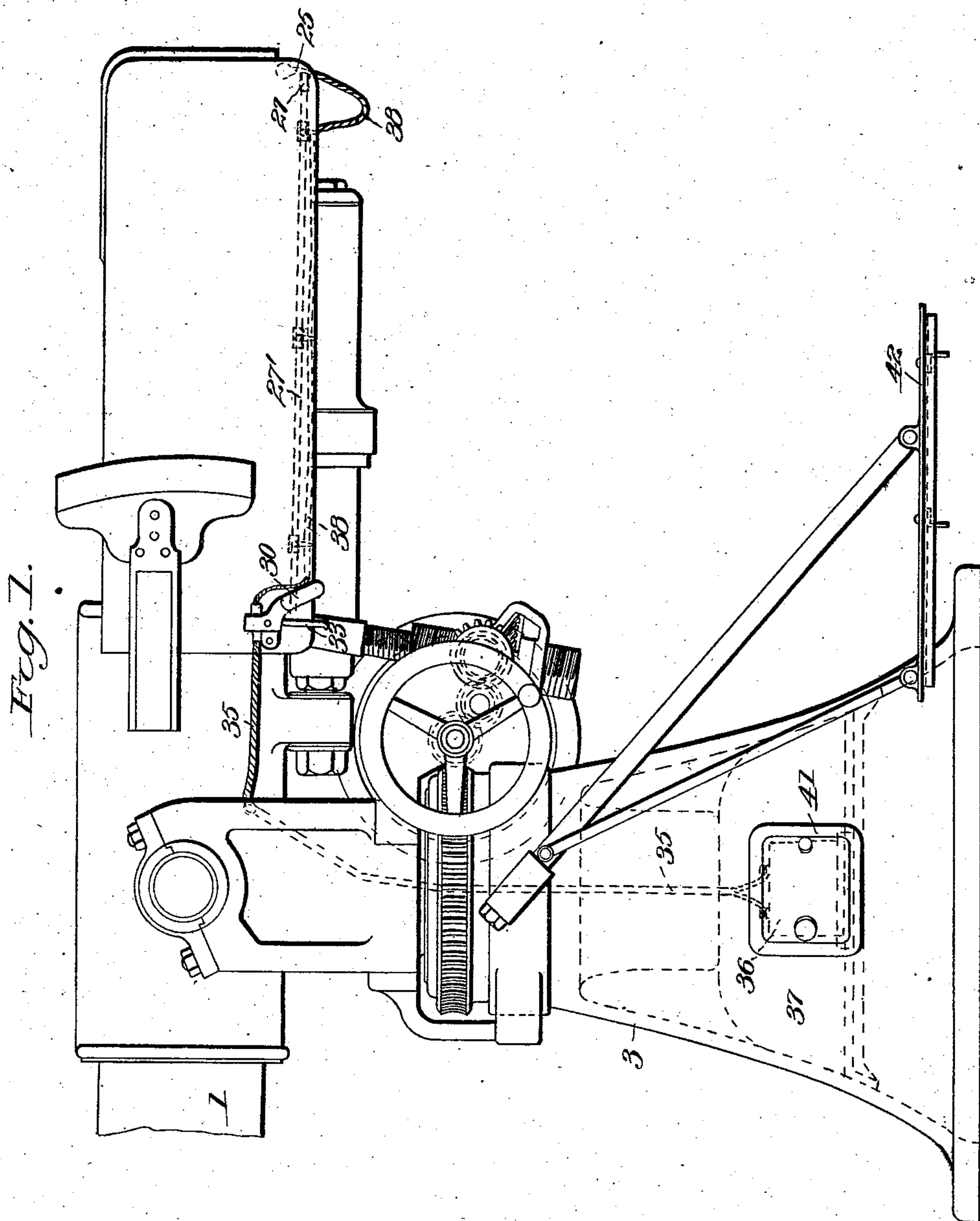


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PATENTED MAY 28, 1907.

W. H. BEVANS.  
ELECTRIC AND PERCUSSION FIRING MECHANISM.  
APPLICATION FILED MAY 9, 1904.

3 SHEETS—SHEET 1.



Witnesses

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*C. E. Webb.*

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*his*

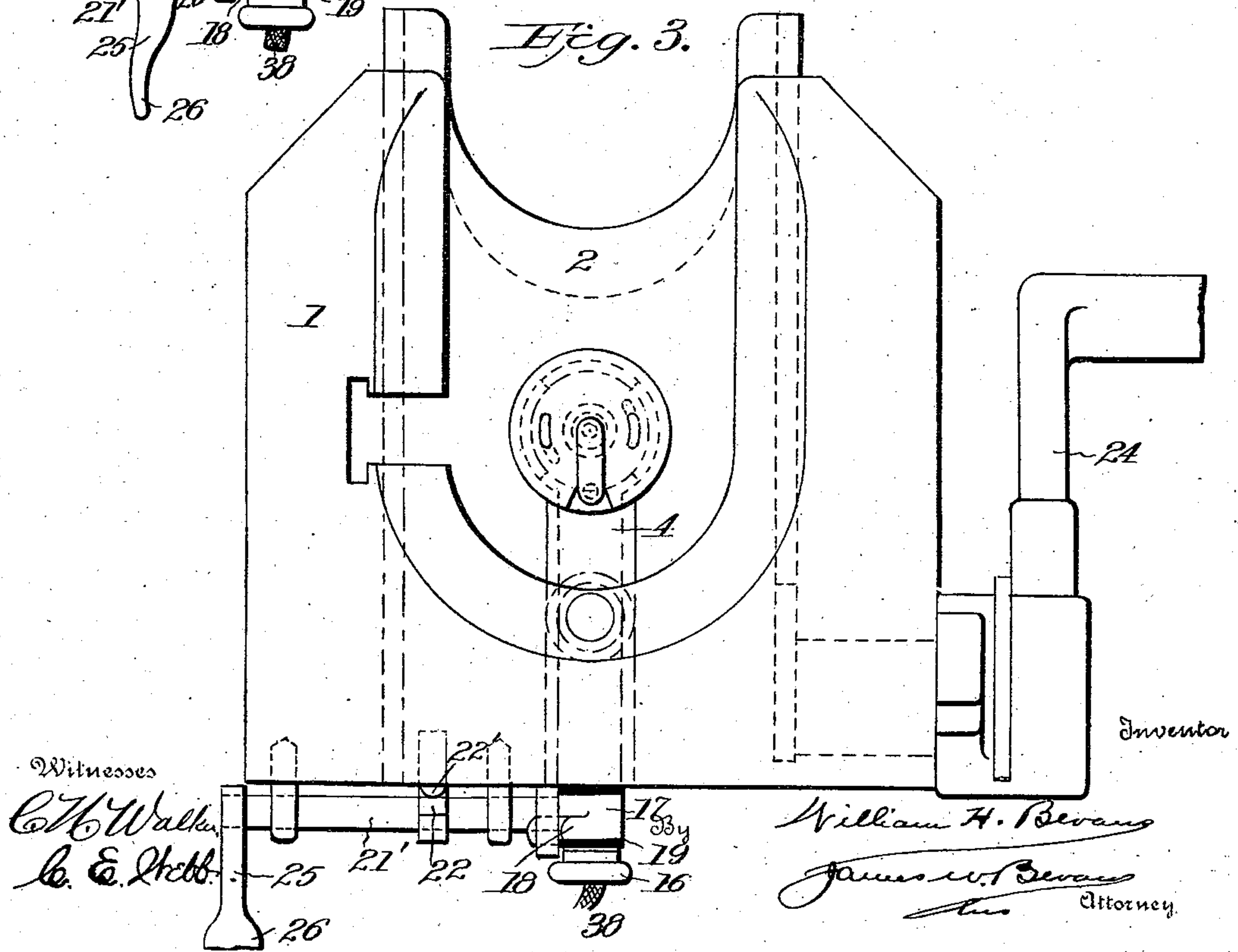
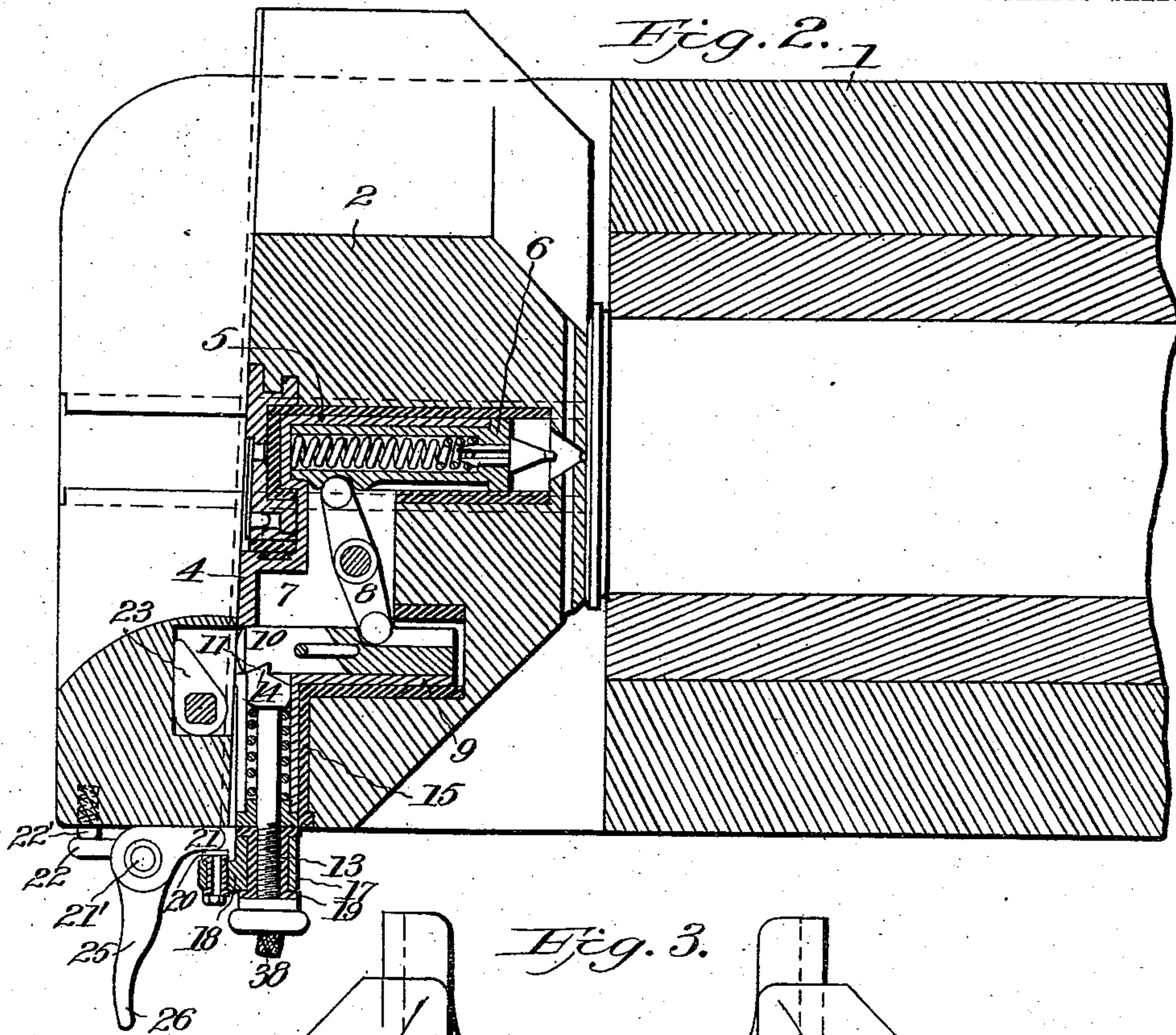
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3 SHEETS—SHEET 2.



Witnesses

*C. H. Walker*  
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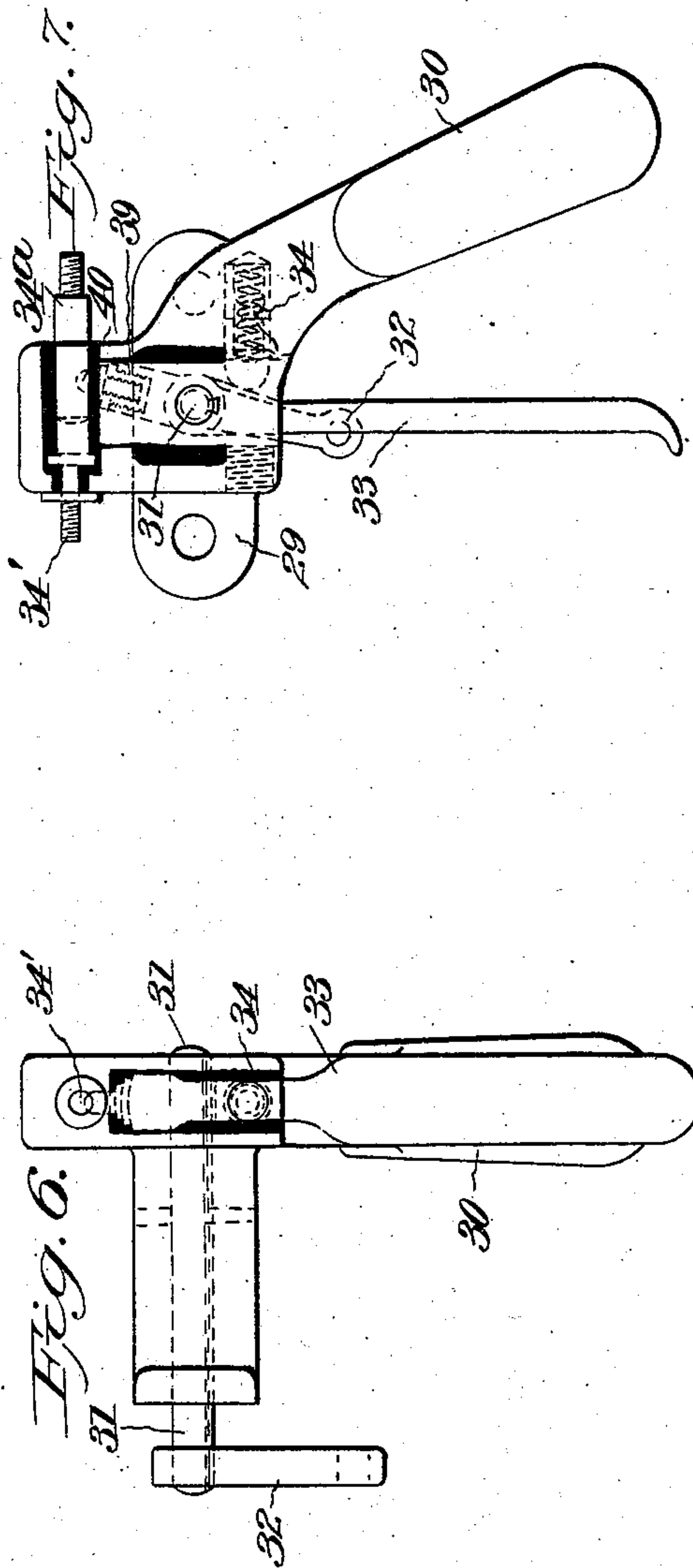
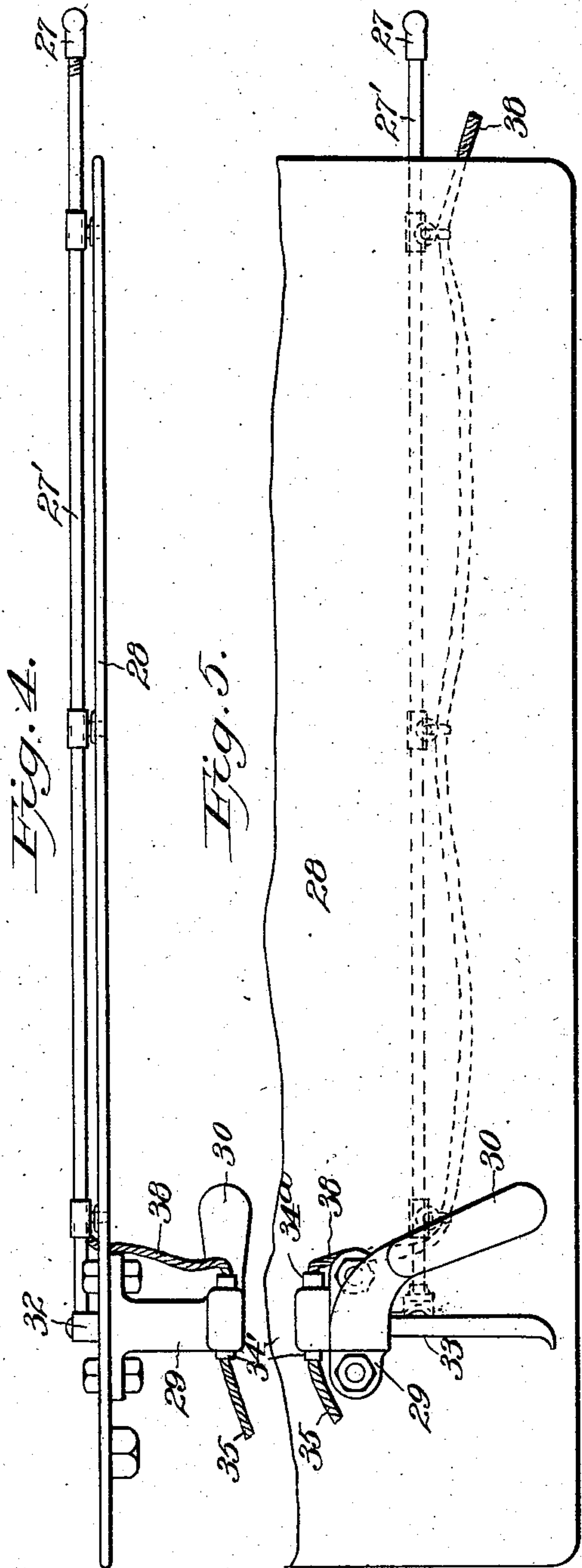


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3 SHEETS—SHEET 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM H. BEVANS, OF BRIDGEPORT, CONNECTICUT.

## ELECTRIC AND PERCUSSION FIRING MECHANISM.

No. 855,427.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed May 9, 1904. Serial No. 207,130.

*To all whom it may concern:*

Be it known that I, WILLIAM H. BEVANS, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented new and useful Improvements in Electric and Percussion Firing Mechanism, of which the following is a specification.

This invention relates to improvements in ordnance, and particularly to firing-mechanisms, the object being to provide an improved firing-mechanism by means of which the gun may be fired either electrically or by percussion, the mechanism being so arranged that should the percussion-gear fail to perform its function, the electric-gear will operate without necessitating the changing of any part by the gunner or occasioning the slightest delay.

With the above object in view, the invention consists in the novel features of construction, hereinafter fully described, particularly pointed out in the claims, and clearly illustrated in the accompanying drawing, in which

Figure 1 is a side elevation of a gun and mount provided with my invention; Fig. 2, a vertical, longitudinal, sectional view through the gun-breech; Fig. 3, an end elevation of the breech-end of the gun; Fig. 4, an enlarged top-plan view of the trigger-mechanism, its support and the operating member interposed between the trigger and firing-mechanism parts carried by the breech and block; Fig. 5, a side elevation of the same; Fig. 6, a front elevation of the trigger-mechanism, and Fig. 7, a side elevation of the same.

Referring now more particularly to the drawings, 1 designates the gun having a drop-block 2 of the "Hotchkiss" type, and 3 the mount. The firing mechanism carried by the block, as here illustrated, is substantially the same as that described and claimed in my application for Letters Patent of the United States, filed May 9th, 1904, Serial number 207,129, and consists of a case 4 fitted in the block from the rear face thereof and formed with a horizontally-disposed casing 5 for a sliding spring-actuated firing-pin 6; a casing 7 for an intermediately pivoted lever 8 engaging the firing-pin; a casing 9 for

a horizontally disposed sliding cocking and locking member 10 engaged by the opposite end of the lever 8 and having a notch 11 formed therein, and a vertically-disposed casing 12 for a sliding spring-pressed locking-bolt 13 having a projection 14 engaging the notch of member 10. In the present invention however, the case 4 is insulated from the block by insulating material 15 interposed between the same and the wall of the block, and is also insulated from the locking plate that holds the case in position. Positioned upon the lower end of the bolt 13 and secured thereon by a nut 16, which is threaded on the bolt, is a sleeve 17 carrying a toe 18. This sleeve is insulated from the bolt by a bushing 19 of insulating material. The toe carries a contact-piece 20 insulated from the sleeve, and adapted to engage this contact-piece of the toe for the purpose of effecting the movement of the bolt 13 to withdraw its projection from the notch of member 10, is an arm 21 upon a transversely-extending shaft 21' mounted in a bearing on the under-side of the gun-breech rearward of the block. This shaft also carries an arm 22 disposed oppositely to arm 21, against which a spring-pressed plunger 22' carried by the gun-breech presses, to hold arm 21 steady and return it to normal position after it has been operated to effect the firing of the gun by percussion.

A cocking-arm 23 is provided, mounted upon a shaft extending transversely through the gun-breech and carrying means on its opposite end to be engaged by the hand-lever 24.

As described thus far, the mechanism with the exception of the insulation and nut 16 is substantially the same as that shown, described and claimed, in my application before referred to.

Shaft 21' has on its end, an arm 25 having a flattened contact-portion 26, located, when the gun is in battery, in close proximity to or in contact with the spherical head of a tip 27 adjustable by means of threads on the inner side of a guard-plate 28 attached to a non-recoiling part of the mount. Attached to the outer side of said guard-plate is a bracket 29 carrying a pistol-grip 30, in which a transversely-extending shaft 31 is mounted,



said shaft projecting to the inner side of the guard-plate and carrying a laterally extending arm 32, operatively connected with the forward end of the rod 27'. This shaft also carries in close proximity to the grip, a trigger 33 normally pressed forward by a coiled spring 34. Arranged in the upper forward portion of the pistol-grip is a binding post 34' insulated from the grip, to which a wire 35 is attached leading from the batteries 36 arranged in a compartment 37 in the pedestal of the mount. Slidably mounted in the grip in line with 34' is a circuit breaker and maker 34<sup>a</sup> to which one end of a wire 38 is attached, the other end of the wire being connected to the nut 16. Carried by the trigger on the opposite side of its pivot from its trigger portion and insulated therefrom by a bushing 39 is a projection 40 which engages and effects the movement of the circuit maker and breaker 34<sup>a</sup>. When the circuit is formed the current passes through wire 35; contact maker 39; wire 38; bolt 13; member 10; lever 8; firing pin 6; and through the primer, back through the gun and mount to the batteries.

The parts being in the position shown in Figs. 2 and 7, a pull upon the trigger will cause the rod 27' to move rearwardly, its tip 27 pressing against arm 25 of shaft 21' and rocking said shaft, causing projection or arm 21 to press upon toe 18 and effect the downward movement of the bolt 13 to disengage its projection from the notch of member 10. This releases the firing pin which is forced forward by its spring, firing the gun by percussion. A continued pull upon the trigger causes the actuating-member 40 to move the contact-maker in engagement with the adjacent binding-post 34', completing the circuit, and should there have been a failure in the operation of the percussion mechanism, the gun will be fired electrically.

By removing the binding-post 34' with its wire, the gun may be fired without its electric-mechanism.

As soon as the trigger is released, the spring 34 returns it to normal position, retracting the rod 27' and breaking the circuit.

The block is lowered and raised by the usual "Hotchkiss" mechanism actuated by the hand-lever, and the firing-mechanism is cocked by the cocking-arm 23 actuated by the hand-lever.

Access may be had to the compartment containing the batteries through a door 41. The platforms 42 for the gunners, movable with the gun when it is trained, form the subject-matter of an application filed April 15th, 1904, Serial number 203,298.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is;—

1. In a firing mechanism for ordnance, an electric circuit, a pistol-grip, a fixed contact carried by said grip and insulated therefrom to which one of the circuit wires is attached, a sliding contact maker and breaker movable in said grip to and from said fixed contact and to which the other wire of the circuit is attached, a pivoted trigger carried by said grip, and a projection carried by said trigger and insulated therefrom engaging and effecting the movement of said contact-maker and breaker to make and break the circuit.

2. In a firing mechanism for ordnance, the combination with the firing-pin and a member for tripping the same, of a sliding-rod mounted upon a non-recoiling part of the mount adapted to engage and actuate said tripping-member, a rock-shaft mounted adjacent to said sliding-rod, a trigger for rocking said shaft, and an operative connection between the shaft and sliding rod.

3. A firing-mechanism for ordnance comprising electric and percussion gears for firing the charge, and operating means constructed and arranged whereby a certain movement thereof effects the operation of one of said gears and a further movement, the operation of the other gear.

4. A firing-mechanism for ordnance comprising an electric circuit, a contact maker and breaker for making and breaking said circuit, a firing-pin, tripping means for said pin, a member for operating said tripping means, and means arranged to operate said member upon a certain movement and upon a further movement to operate the circuit maker and breaker to make the circuit.

5. A firing-mechanism for ordnance comprising an electric-circuit, a circuit maker and breaker, a firing-pin, a tripping member therefor, a sliding operating-member for operating said tripping-member, a trigger, an operative connection between said trigger and sliding member, and means carried by the trigger for actuating the circuit-maker and breaker to form the circuit.

6. A firing-mechanism for ordnance comprising an electric circuit having a fixed, and a movable terminal, a pivoted trigger means carried by said trigger for moving the movable terminal into contact with the fixed terminal for making the circuit, a firing-pin, tripping-means therefor, a sliding-rod for operating said tripping-member, and an operative connection between the rod and trigger.

7. A firing mechanism for ordnance, comprising electric and percussion gears for firing the charge, and a single operating means for

both of said gears constructed and arranged so as to be normally capable of operating both of said gears.

5 8. A firing mechanism for ordnance comprising means for firing the gun electrically, and means for firing the same by percussion, and a single operating means so constructed and arranged that a slight movement thereof effects the operation of one of said means

and a further movement effects the operation of the other means.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. BEVANS.

Witnesses:

L. E. BRADSTREET,  
WM. A. WHEELER.