

No. 615,814.

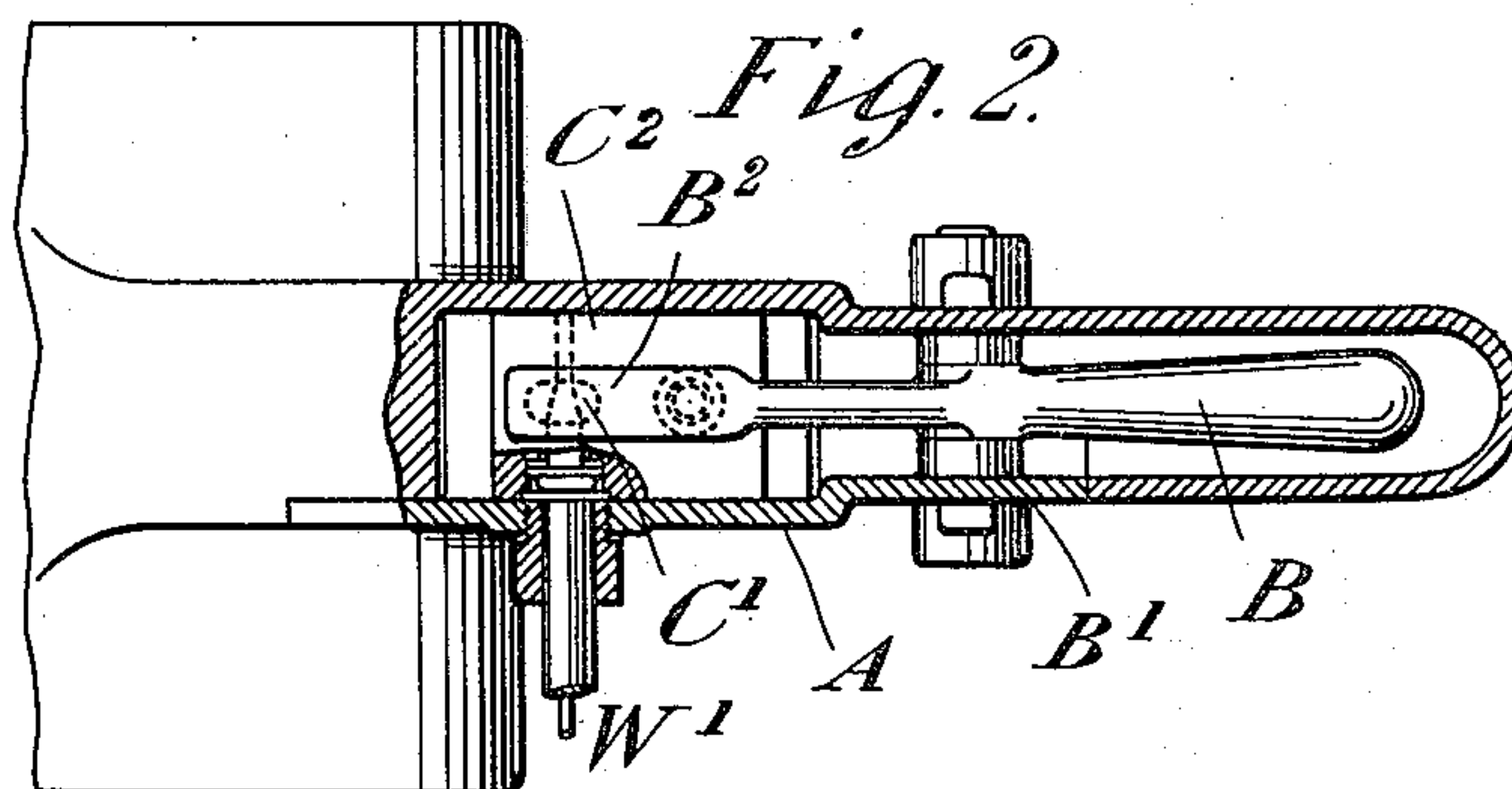
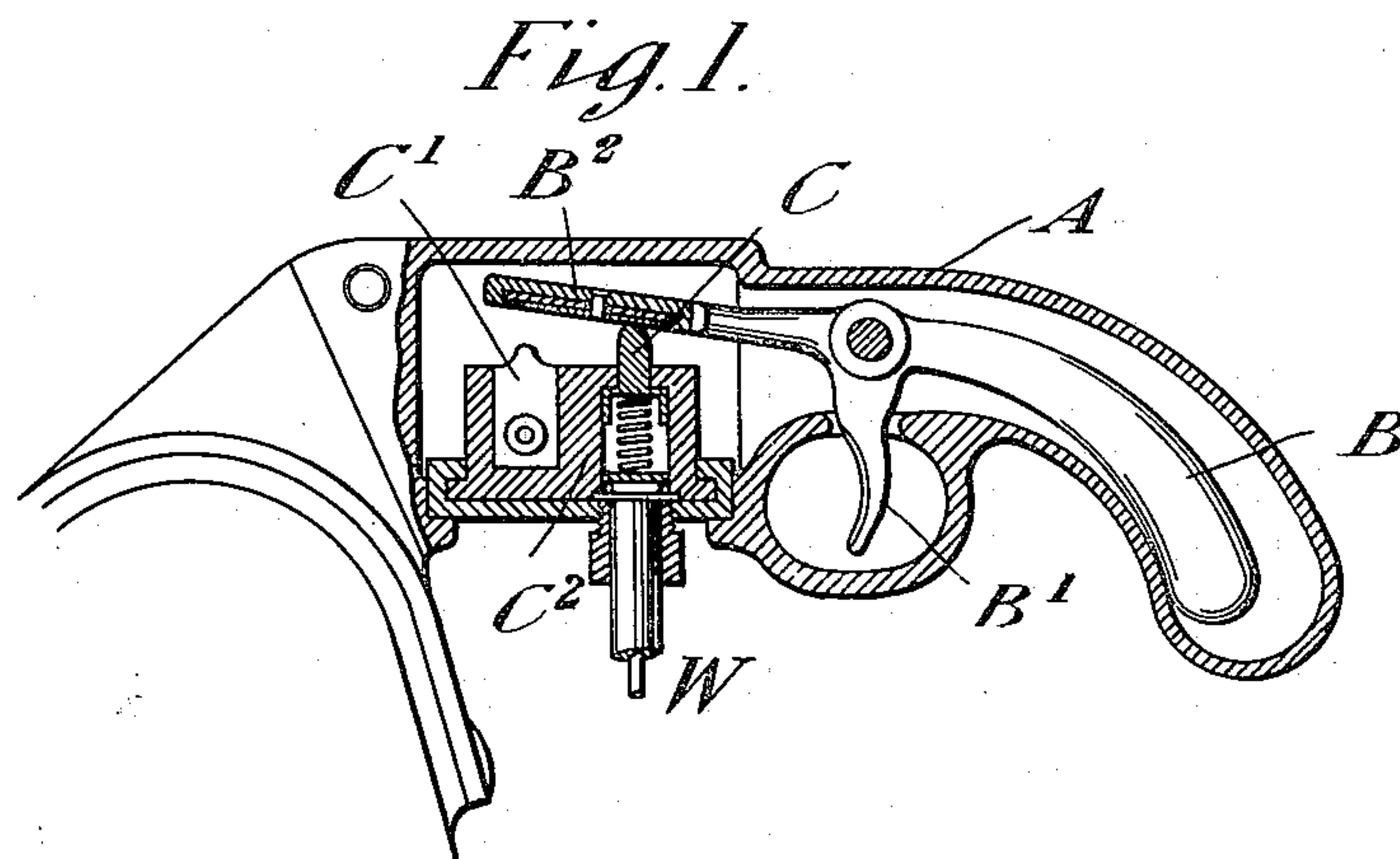
Patented Dec. 13, 1898.

A. T. DAWSON & G. T. BUCKHAM.
ELECTRIC FIRING DEVICE FOR ORDNANCE.

(Application filed May 16, 1898.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses

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Inventors

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James L. Norris

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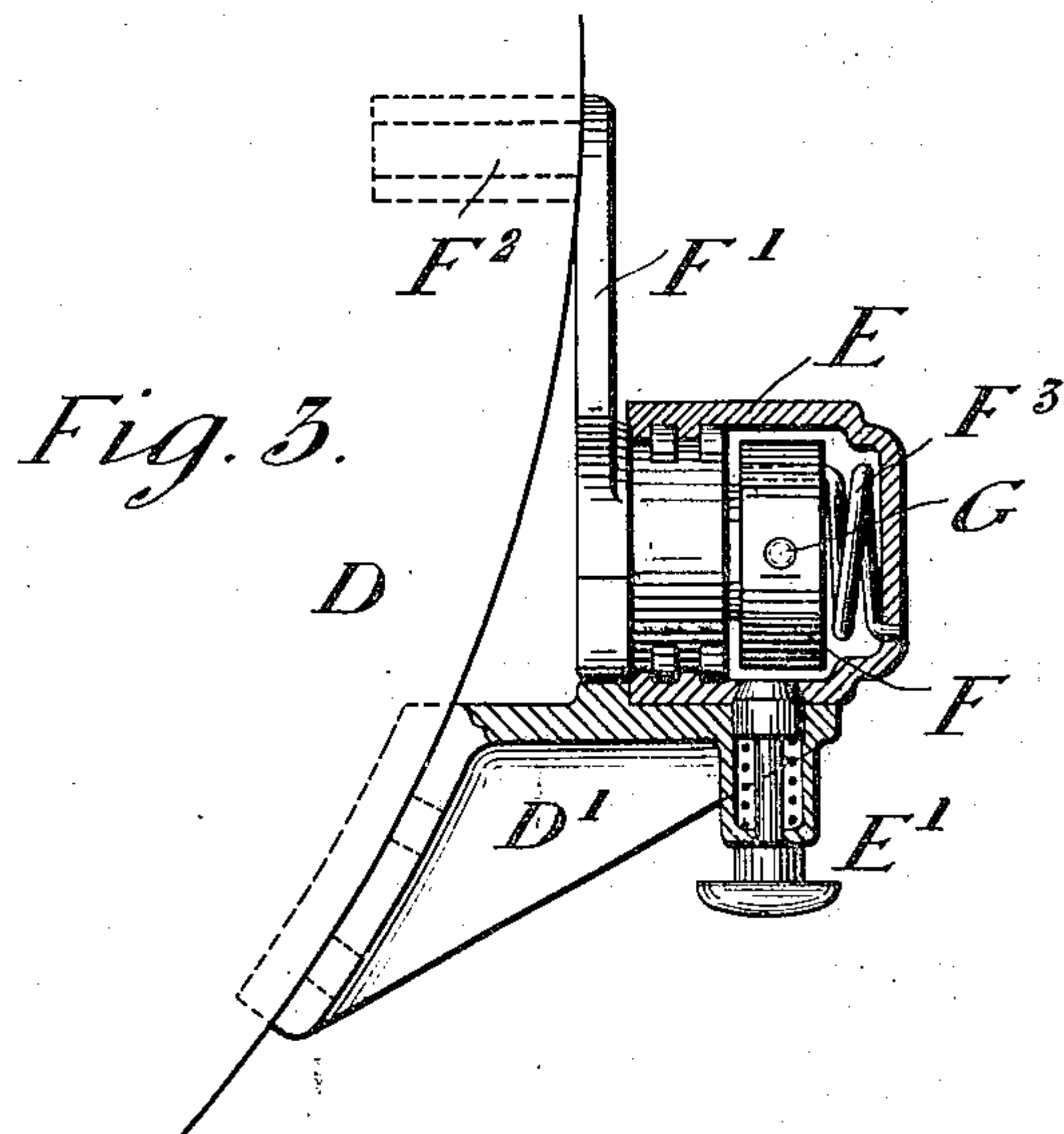
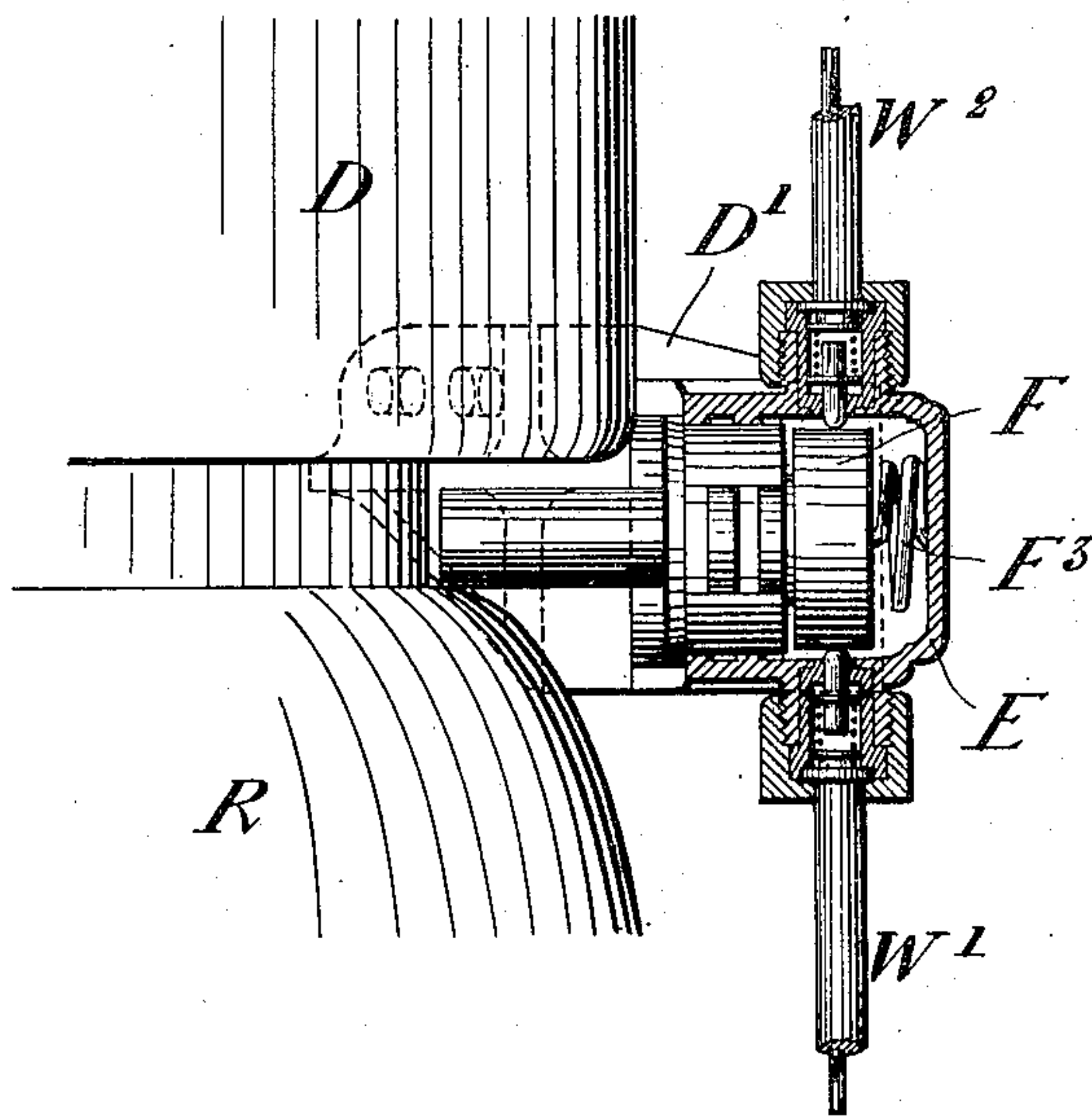


Fig. 4.



Witnesses

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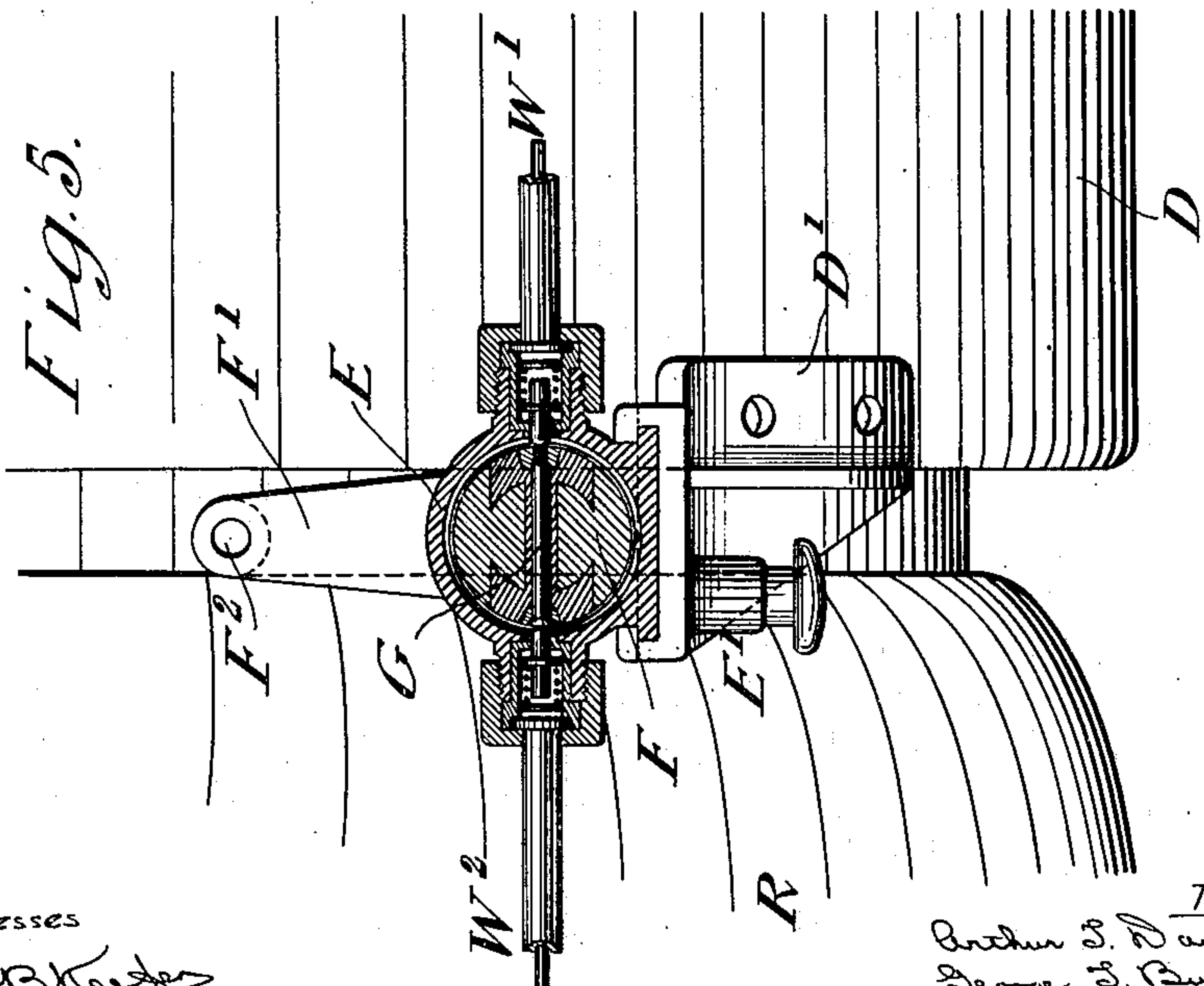
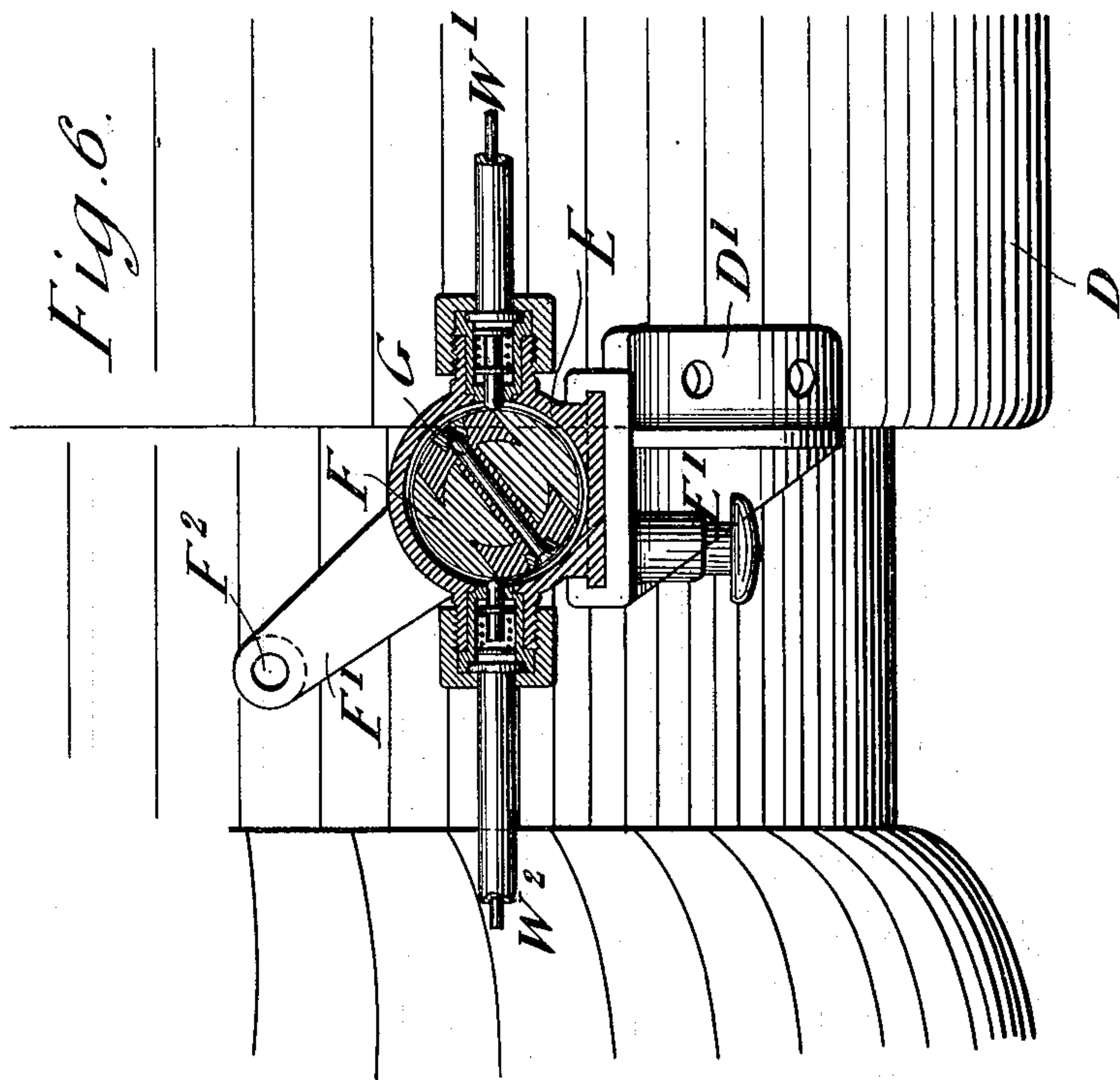
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(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

ARTHUR TREVOR DAWSON AND GEORGE THOMAS BUCKHAM, OF LONDON, ENGLAND, ASSIGNORS TO THE VICKERS, SONS & MAXIM, LIMITED, OF SHEFFIELD, ENGLAND.

ELECTRIC FIRING DEVICE FOR ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 615,814, dated December 13, 1898.

Application filed May 16, 1898. Serial No. 680,832. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR TREVOR DAWSON and GEORGE THOMAS BUCKHAM, citizens of England, residing at No. 28 Victoria street, Westminster, London, England, have invented certain new and useful Improvements in Electric Firing Apparatus for Ordnance, (for which we have applied for a patent in Great Britain, dated October 20, 1897, No. 24,262,) of which the following is a specification.

Our invention relates to electric firing apparatus for ordnance, so arranged that firing is automatically prevented unless the gun is in firing position and that electrical contact for firing cannot take place accidentally. In order to prevent firing when the gun is not in firing position, we introduce in the electric circuit a switch which is kept by a spring from completing the circuit when the gun is in a rear position, but which when the gun is run out to firing position is moved to a position so as to make contacts, closing the circuit in condition to pass the firing-current. This current is transmitted from the source of electricity by the action of a firing-switch which is in the form of a pistol which can be held in the hand. In the case of the pistol there is a loaded lever attached to the trigger and having on its unloaded arm an insulated piece of conducting metal which is pressed by a spring-plunger coöperating with the load on the other arm of the lever away from a contact-stud. One of the conducting-wires being connected to the spring-plunger and the other to the contact-stud, on pulling the trigger in opposition to the weight and spring the piece of metal is brought to bear on the stud, thus forming a conducting-bridge connecting the plunger and stud, and thus closing the electric circuit.

In order that the construction and action of the apparatus may be more clearly understood, we shall describe it in detail, referring to the accompanying drawings.

Figure 1 is a vertical section, and Fig. 2 is a horizontal section, of the firing-pistol. Fig. 3 is a vertical section, and Fig. 4 is a horizontal section, of the switch, which is shown in its two different positions in Figs. 5 and 6.

A is the hollow pistol-case, in which is pivoted a lever having a heavy rear arm B, a trigger-arm B', and a third arm B², on the under side of which is fixed, insulated, a plate of metal. One of the conducting-wires W is attached to a spring-urged plunger C, on which rests the lever-arm B². The other wire W' is attached to a piece of metal C'.

C² is a block of insulating material in which the metallic piece C' is held and in which the spring-plunger C is fitted to slide.

A bracket D', fixed on the cradle D, in which the gun slides, is made with side recesses, into which is slid the casing E of the switch, which is held in position by a spring-bolt E'. Within the casing is fitted to revolve a plug F, having two opposite segments made of insulating material and a hole through it also lined with insulating material. Through this hole and the segments passes a rod, of metal, G, secured by nuts on its ends. The plug F has an arm F', which terminates in a projecting pin F², and on the axis of the plug is a torsional spring F³, which urges the plug against a stop to the position shown in Fig. 6. The two conducting-wires W' and W² are connected to spring-plungers, which bear against the plug F on opposite sides of it. R is the breech-ring of the gun, between which and the cradle D the pin F² projects. When the gun has recoiled, the breech-ring R being at some distance behind the cradle D, as shown in Fig. 6, the pin F² being free, the switch-plug F is urged by its spring to take the position in which the ends of the rod G are not in contact with the spring-plungers; but when the gun is run out to firing position, bringing its ring R nearly up to the cradle, as shown in Fig. 5, then the pin F² and arm F' are moved so as to turn the plug F into the position when the ends of the rod G are in contact with the spring-plungers, so that there is a conducting connection of the wire W' to the wire W². When the parts are in this condition and the wire W is in connection with a source of electricity, while the wire W² is in connection with the firing-fuse, the gun can be fired by pulling the trigger B', thus bringing the plate on the arm B² down

on the piece of metal C', so as to form a conducting-bridge from the wire W through the plunger C to the piece C' and the wire W'.

When the gun recoils, the switch-plug F is urged by the spring F³ to take the position shown in Fig. 6, opening the circuit, so that the gun cannot be fired electrically until the gun is again run up to firing position. When the trigger B' is let go, the heavy arm B and the spring-plunger C cause the plate on the arm B² to leave the piece C', thus opening the circuit until the trigger is pulled again.

Having thus described the nature of this invention and the best means we know for carrying the same into practical effect, we claim—

Electrical firing apparatus for ordnance consisting of a wire connecting a source of electricity to a spring-plunger, a trigger-lever having an arm adapted to form a conducting-bridge to a piece of metal, a wire

connecting this piece of metal to a switch on the gun-cradle this switch being provided with a spring and lever arm having a pin in the path of the breech-ring of the gun, and a wire connecting the switch to the firing-fuse, arranged and operating substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

ARTHUR TREVOR DAWSON.
GEORGE THOMAS BUCKHAM.

Witnesses to the signature of Arthur Trevor Dawson:

GEO. W. REA,
F. B. KEEFER.

Witnesses to the signature of George Thomas Buckham:

FRED C. HARRIS,
JNO. P. M. MILLARD.