

(No Model.)

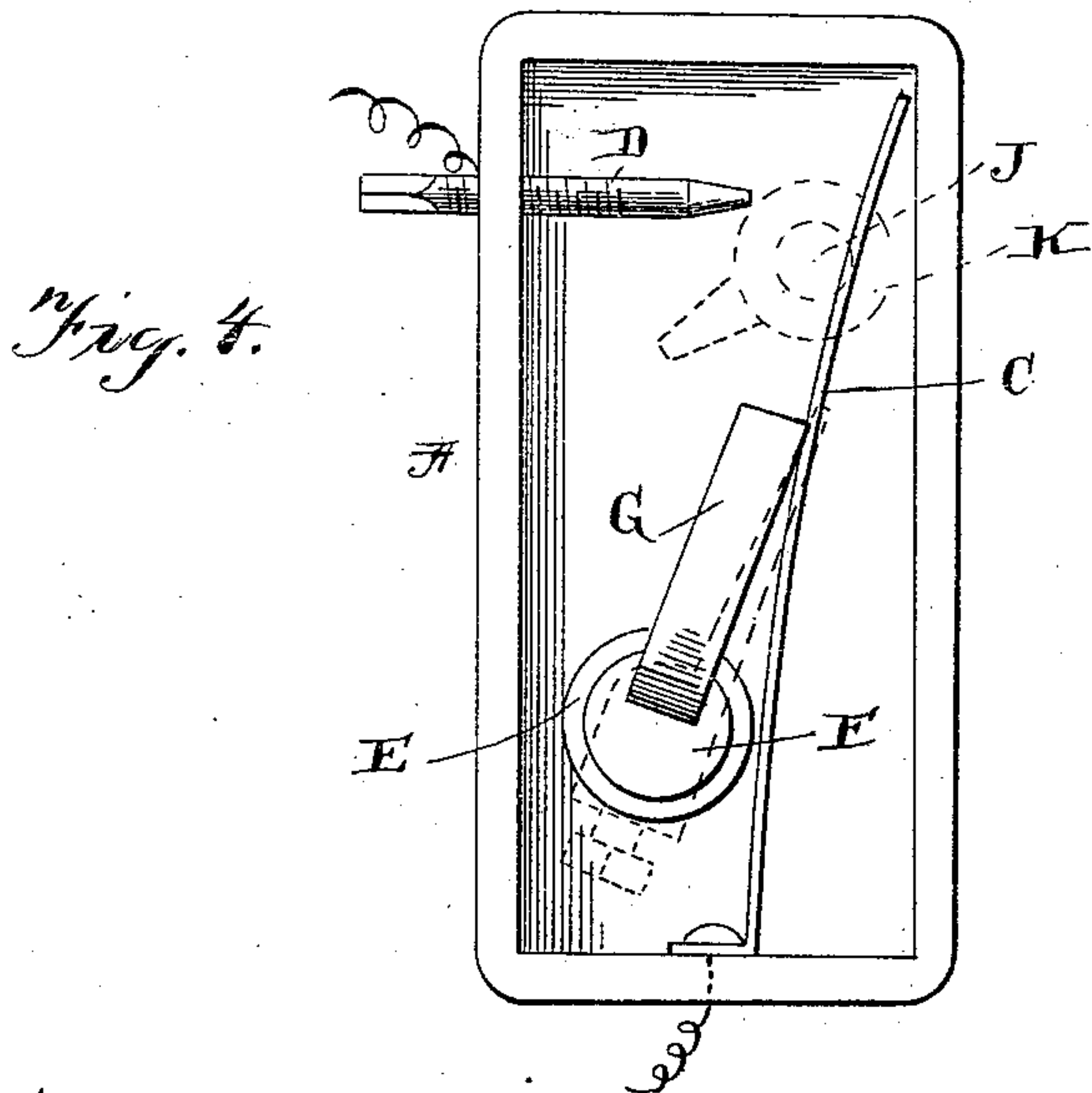
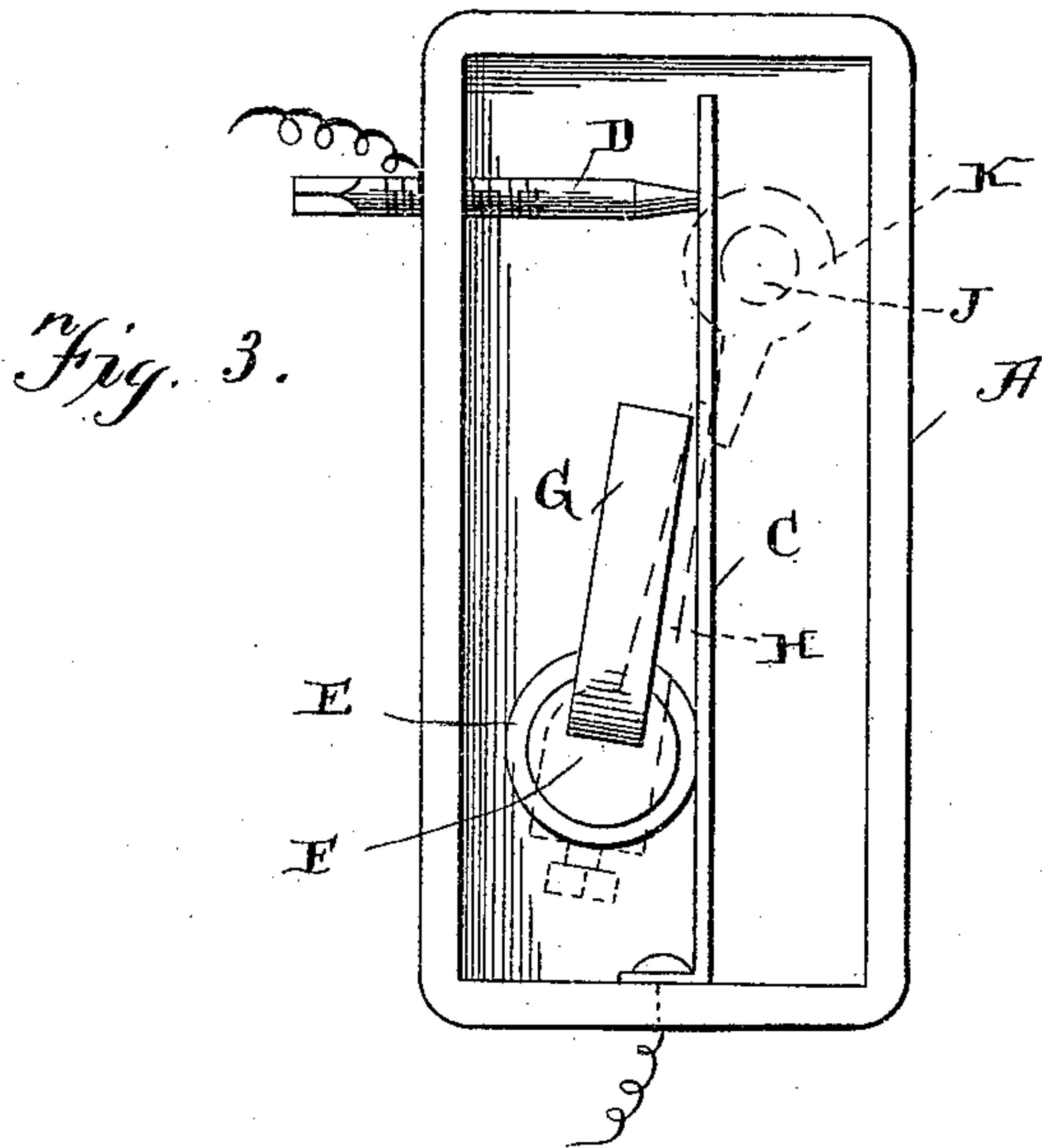
2 Sheets—Sheet 2

A. J. SIGNOR.

ELECTRICAL IGNITING DEVICE FOR GAS ENGINES.

No. 538,132.

Patented Apr. 23, 1895.



WITNESSES—
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ALFRED J. SIGNOR, OF ELKHART, INDIANA.

ELECTRICAL IGNITING DEVICE FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 538,132, dated April 23, 1895.

Application filed March 26, 1894. Serial No. 505,170. (No model.)

To all whom it may concern:

Be it known that I, ALFRED J. SIGNOR, of Elkhart, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Electrical Igniting Devices for Gas or other Explosive Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improved electrical igniting device for gas and other explosive engines; and the object of the same is to provide an improved circuit breaking device within the cylinder, whereby a spark is produced and the fluid ignited.

With this object in view my invention consists in the novel features of construction hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of an engine cylinder provided with my improved igniting device. Fig. 2 is a side elevation of the same. Fig. 3 is a view of the interior of the cylinder, showing the position of the several parts when the circuit is unbroken. Fig. 4 is a similar view showing the position of the several parts when the circuit is broken.

A designates the cylinder or exploding chamber of a gas or other explosive engine and B the piston movable therein. Secured at one end within the cylinder and connected to one pole of a battery, not shown, is the long flat spring C which at its free end is adapted to contact with post D projected inward through the cylinder wall, and connected to the other pole of the battery. The circuit is complete or unbroken with the spring in its normal position.

E is a longitudinally recessed support which is inserted in an opening in the cylinder wall and movable therein is shaft F having secured to its inner end within the cylinder, and adjacent spring C, the arm G and secured to the outer end of the said shaft is the arm H. A spring I is coiled about support E with one end in engagement with arm H, while its

opposite end is secured in any suitable manner to the cylinder, and by this means it will be seen that the shaft F is so held that arm G rests normally against spring C so as to break its contact with post D.

Arranged adjacent the cylinder, and propelled in any suitable manner is a shaft J carrying the knocker K which is adapted to engage the free end of arm H, thereby giving shaft F a backward movement, and removing arm G from spring C so that the latter closes against post D and completes the circuit. The knocker however suddenly slips from its engagement with arm H, as will be readily understood, so that the recoil of spring I returns shaft F very forcibly to its normal position, throwing arm G very suddenly against spring C and breaking its contact with post D, at which instant a spark will be formed at the point of breaking, as will be readily understood. The device is so adjusted that this breaking occurs at the instant an explosion is desired for propelling the piston B, and the same instantly ignites the fluid within the chamber A, thereby effecting the desired result.

It will be noticed that spring C is not sufficiently strong to resist the normal pressure of arm G as actuated by spring I, so that contact is only had with post D while arm G is being drawn backward just prior to the circuit breaking operation.

Support E is provided with a shouldered enlargement for the purpose of forming a wrench hold when the same is to be inserted or withdrawn from the cylinder.

It will also be noticed that arm H is adjustably secured to shaft F by means of set screw H', thus enabling me to adjust said arm to whatever position it may be found most convenient to arrange the knocker in relation thereto.

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

1. An improved igniting device for gas and other explosive engines comprising an electrical circuit, a device within the exploding chamber for normally continuing the circuit, the said device being spring-held, a shaft, an arm carried thereby which is adapted to engage the said device for the purpose stated, a

means for suddenly imparting motion to the shaft, and a spring for resisting this movement of the shaft which is stronger than the resistance of the said spring-held device, substantially as shown and described.

2. An improved igniting device for gas and other explosive engines comprising a spring plate which is connected to one pole of an electric battery, a contact point connected to the other pole of the battery, and which is adapted to be engaged by the free end of the spring plate, a shaft, an arm carried thereby for the purpose of breaking the contact between the spring and said contact point, and a means for suddenly imparting motion to the shaft, substantially as shown and described.

3. An improved igniting device for gas and other explosive engines comprising an electrical circuit, a breaker within the exploding chamber consisting of a spring plate, a spring-held shaft, an arm carried by the shaft which is adapted to engage the said spring plate for the purpose stated, a means for actuating the shaft, and the spring for resisting said actuation, the parts being combined to operate substantially as shown and described.

4. An improved igniting device for gas and other explosive engines comprising an electrical circuit, a spring held circuit breaker

within an exploding chamber for normally continuing the circuit, a device adapted to engage said breaker for suddenly interrupting the circuit, and a spring for resisting the movement of said device which is stronger than the resistance of the spring held circuit breaker, substantially as shown and described.

5. An improved igniting device for gas and other explosive engines, comprising an electrical circuit, a circuit breaker within the exploding chamber, a longitudinally recessed support, a shaft extending therethrough and carrying at its inner end a device for operating the said circuit breaker, an arm at the outer end of the shaft, a spring arranged in any suitable manner to the support and having its end in engagement with said arm, and a knocker adapted to engage said arm for the purpose of vibrating the shaft, the parts being combined to operate substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED J. SIGNOR.

Witnesses:

ORVILLE T. CHAMBERLAIN,
ETHAN L. ARNOLD.