

No. 636,376.

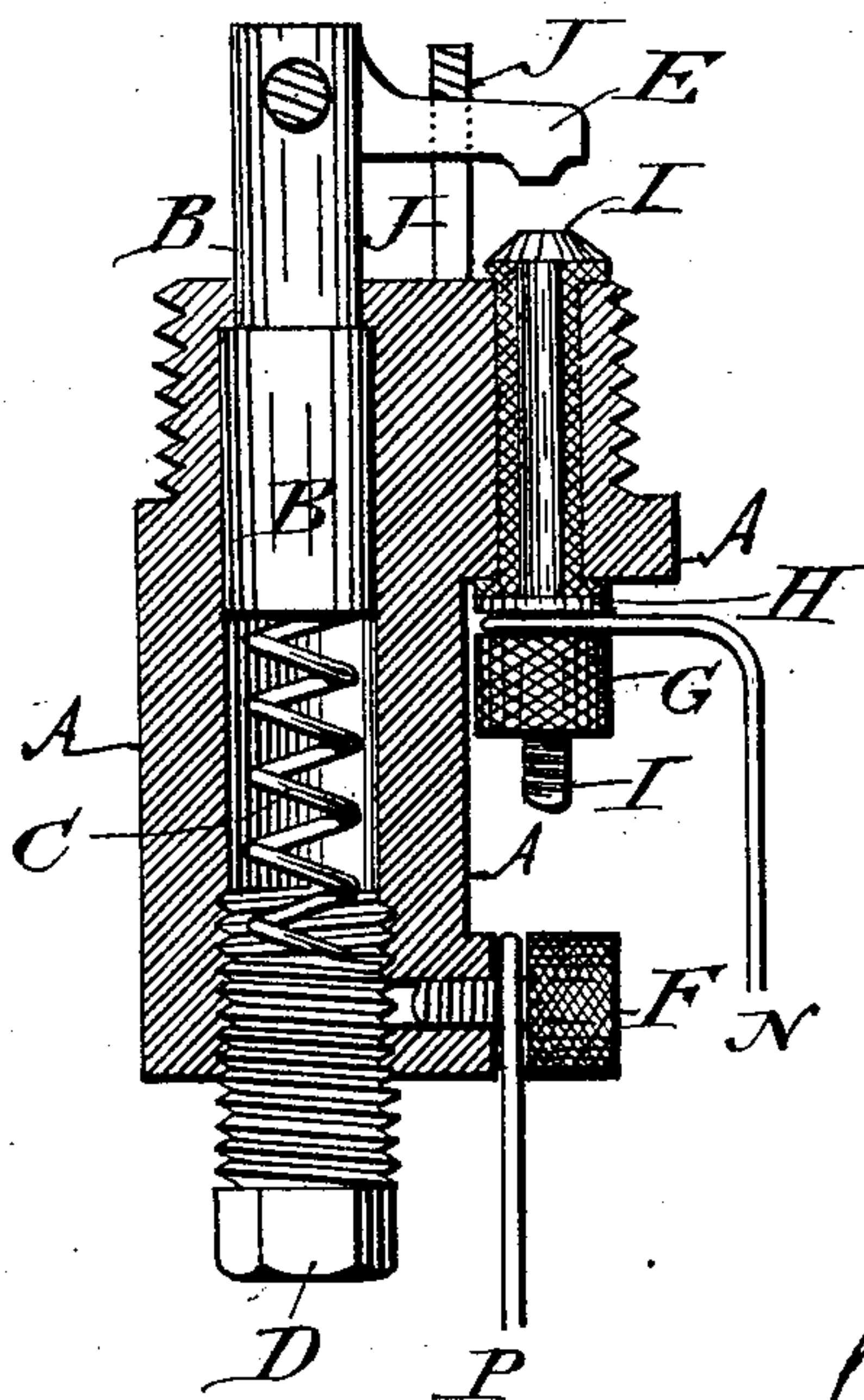
Patented Nov. 7, 1899.

J. S. BLACKBURN.  
ELECTRIC IGNITER FOR GAS ENGINES.

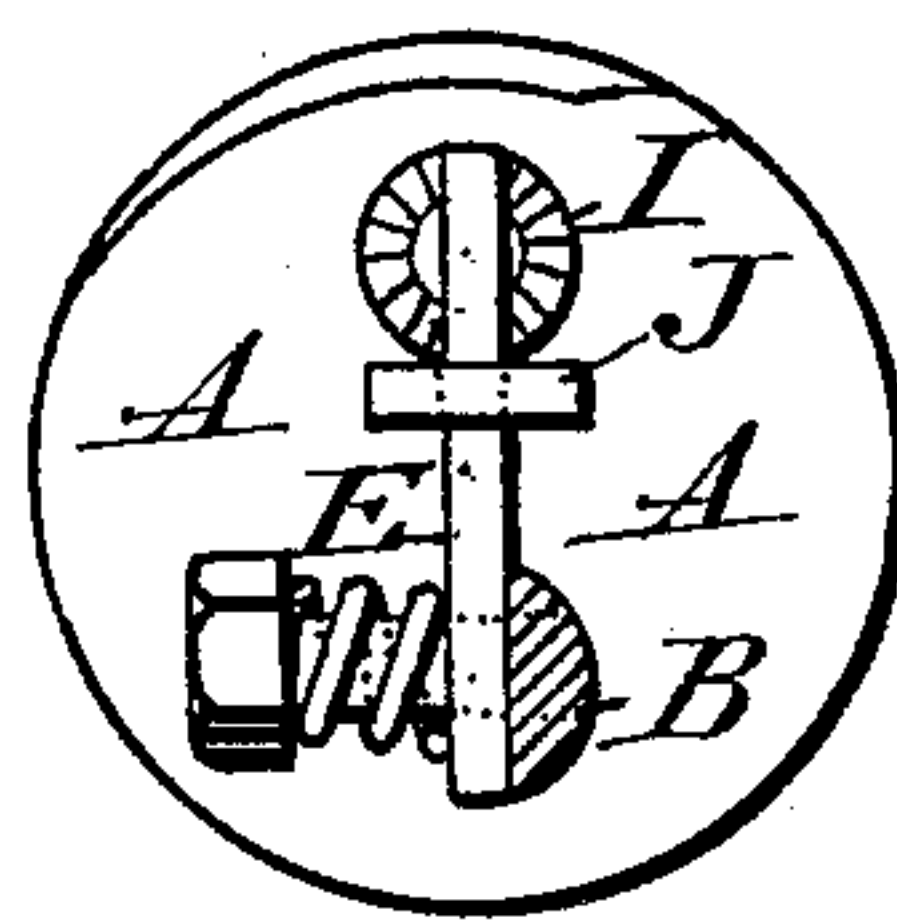
(Application filed Feb. 17, 1897.)

(No Model.)

*Fig. 1.*



*Fig. 2.*



Witnesses.

S. W. Ramsey.

E. Becham

*Inventor.*

Joseph S. Blackburn.

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*Attorney.*

# UNITED STATES PATENT OFFICE.

JOSEPH S. BLACKBURN, OF SALEM, OHIO.

## ELECTRIC IGNITER FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 636,376, dated November 7, 1899.

Application filed February 17, 1897. Serial No. 623,767. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH S. BLACKBURN, a citizen of the United States, residing at Salem, in the county of Columbiana, State of Ohio, have invented certain new and useful Improvements in Electric Igniters for Gas-Engines, of which the following is a specification.

My invention relates to improvements in an electric igniter for gas-engines in which the electric circuit is formed and broken in the compression-space of the gas-engine cylinder.

The objects of my invention are as follows: to provide an automatic igniter that will obviate the necessity of making and breaking the electric circuit oftener than the engine takes an impulse and to provide an igniter that is simple in construction, durable, and efficient in operation. I obtain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view. Fig. 2 is an end view.

Similar letters refer to similar parts throughout both views.

The positive and negative electric wires P and N are connected one between the thumb-screw F and casing A and the other is clamped by the insulated bolt I between thumb-nut G and washer H. The tubular casing A has a threaded end, which can be attached to any suitable part of the compression end of the engine-cylinder. Plunger B operates in casing A longitudinally against spring C, whose tension can be adjusted by plug D. On the outwardly-projecting end of said plunger is a friction-jointed arm E, said arm being connected to the plunger, so that it will be frictionally held in operative position with reference to the bolt I. The friction-joint is for the pur-

pose of taking off the jar at the time said arm comes in contact with the bolt I. For the purpose of assisting in holding the arm E in proper position the staple J is provided. As the gas in the cylinder is compressed it forces the plunger in casing A, carrying with it arm E. When said arm comes in contact with the insulated bolt I, the circuit is then made. As the engine piston-head starts forward plunger B starts also, breaking the electric circuit at E and I, which causes the spark that ignites the gas in the cylinder. Arm E is kept in its proper position by means of staple J.

I am aware that prior to my invention electric igniters for gas-engines have been made. I do not claim such a combination, broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in an electric igniter for gas-engines, of a stationary electrode a cylindrical casing, a piston-plunger operating against a spring therein and exposed to the pressure of the contents of the working cylinder, and a friction-jointed arm carried by said plunger and constituting an electrode, substantially as shown and described.

2. An electric igniter for gas-engines having a stationary electrode, a cylindrical casing, a piston-plunger projecting into the engine-cylinder so as to be operated by the compression of the charge therein, and a friction-jointed electrode-arm making and breaking the electric circuit, and a staple constituting a guide for the friction-jointed electrode-arm, all substantially as set forth.

JOSEPH S. BLACKBURN.

Witnesses:

HARRY D. BAIRD,  
JOHN M. WHITE.