

No. 637,302.

Patented Nov. 21, 1899.

G. S. STRONG.

SPARKING IGNITER FOR EXPLOSIVE ENGINES.

(Application filed May 5, 1899.)

(No Model.)

Fig. 1.

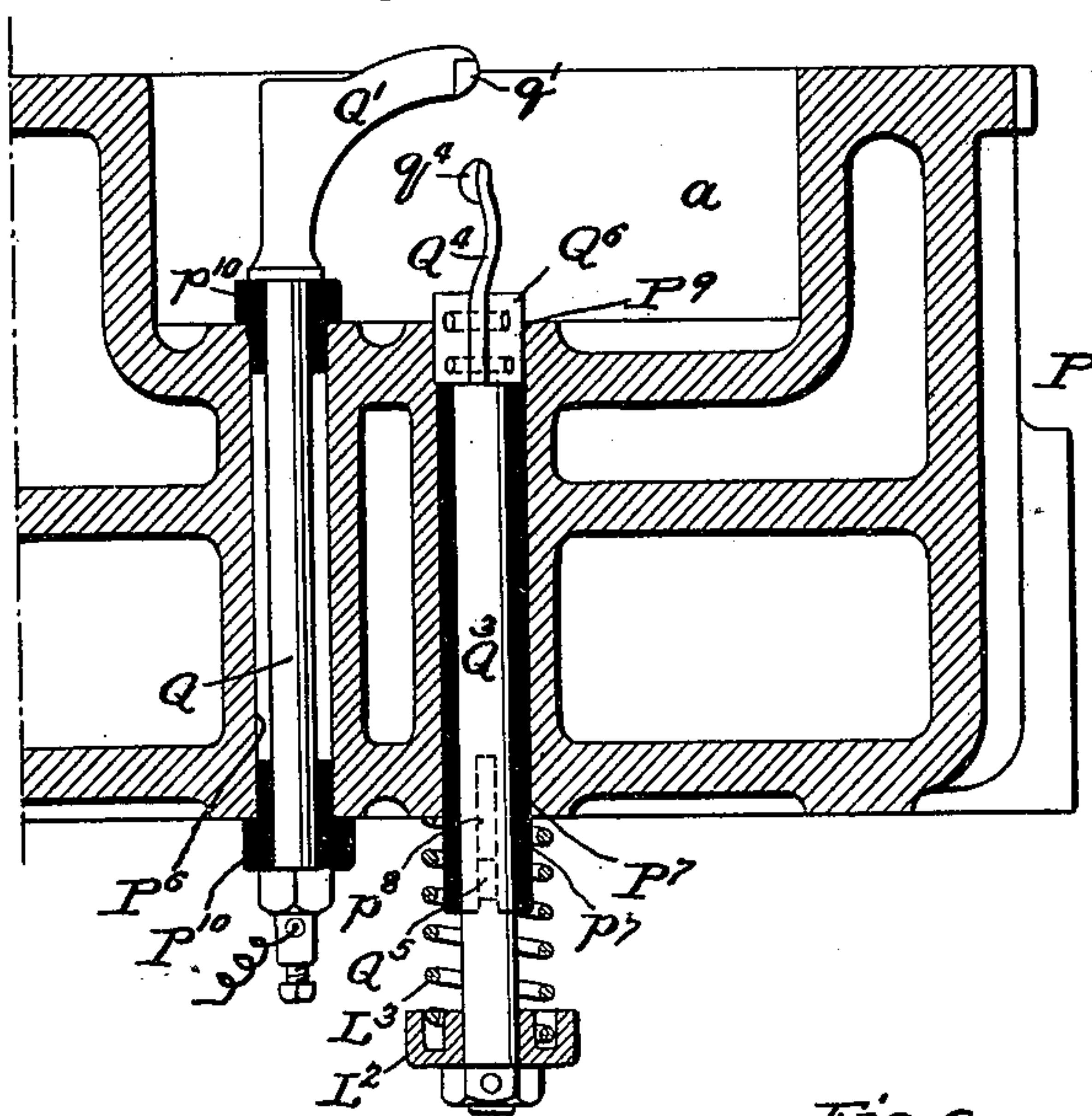
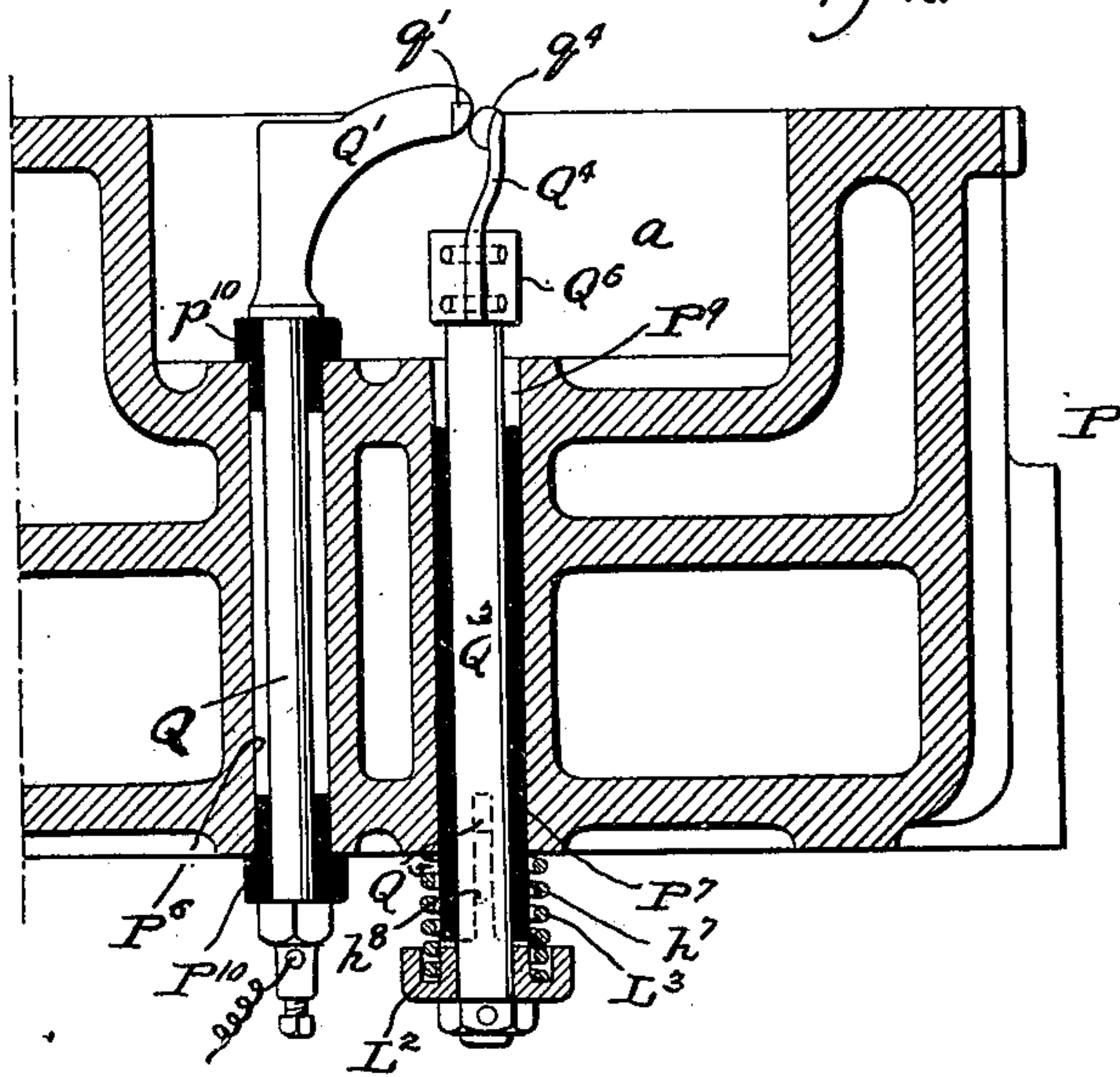


Fig. 2.



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SPARKING-IGNITER FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 637,302, dated November 21, 1899.

Original application filed December 15, 1898, Serial No. 699,312. Divided and this application filed May 5, 1899. Serial No. 715,697. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. STRONG, a citizen of the United States of America, residing in the city, county, and State of New York, have invented a certain new and useful Improvement in Igniters for Gas-Engines, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to an electrical-spark igniter for gas-engines, and has for its object to provide a comparatively simple and efficient igniter of this description and one in which both noise and shock from and upon rapidly-moving parts are avoided.

The nature of my improvements will be best understood as described in connection with the drawings in which they are illustrated, and in which—

Figure 1 is a sectional view through the head of a gas-engine cylinder and the igniter working in connection therewith, the parts being represented in their normal position of rest; and Fig. 2 is a similar view, the parts being represented in the position in which the contact-points of the igniter are in contact with each other in the position they occupy immediately before the separation to produce a spark.

P indicates the head of the gas-engine cylinder, having water-passages formed in it, as is shown, and also having the perforations P^6 and P^7 .

P^{10} are non-conducting thimbles secured in the opposite ends of the perforation P^6 and supporting the conducting-rod Q, the outer end of which is placed by a conductor (not shown) in communication with one pole of the battery or generator, while the inner end Q' , extending into the head a of the cylinder, is curved, as shown, and provided with a contact-point q' .

p^7 is a non-conducting liner fitting in the perforation P^7 and, as shown, extending for some distance above the outer end of the perforation, but not extending entirely to the inner end of the perforation, thus providing a cylindrical chamber P^9 immediately adjacent to the cylinder-head a . The outer end of the liner p^7 is slotted, as indicated at p^8 .

Q^3 is a conducting-rod fitting and longitudinally movable in the liner p^7 and provided at its outer end with a key, as indicated at Q^5 , said key fitting in the slot or slots p^8 and preventing the rod Q^3 from turning in the liner. To the inner end of the rod Q^3 is secured an elastic finger Q^4 , having at its outer end a contact-point q^4 , so placed and arranged as to come in contact with the contact-point q' when the rod Q^3 is thrust inward to the position indicated in Fig. 2, the elastic finger Q^4 being so shaped as to insure contact with some pressure. Also secured to the inner end of the rod Q^3 is a piston-like extension Q^6 , arranged to make a nice fit with the cylinder Q' , already described. As shown, the outer end of the rod Q^3 is provided with a head L^2 , between which and the outer face of the casting P is secured a spring L^3 , acting to force the rod Q^3 outward. Pressure to force the rod inward is applied by a cam or any other convenient device acting on the head of the rod Q^3 or its cap L^2 . It will be understood, of course, that the rod Q^3 is connected by a conductor with the opposite pole of the battery or generator to that connected with the rod Q.

In operation the rod Q^3 is forced inward to the position indicated in Fig. 2, is then released, and the spring L^3 draws it rapidly outward, a spark occurring when the contact-points q^4 and q' break contact with each other. After the formation of the spark the rod Q^3 is drawn to the position indicated in Fig. 1; but before reaching that position the piston Q^6 enters the cylinder P^9 and is cushioned on the air in said cylinder, so that the latter part of its movement is checked and all noise and destructive shock avoided.

My improved igniter, as above described, is especially designed, although not exclusively adapted, for use in connection with my improved gas-engine forming the subject-matter of my application for Letters Patent, Serial No. 699,312, filed December 15, 1898, of which said specification this case is a division.

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

In a gas-engine, an electric igniter consist-

ing of a fixed electrode as q' in combination
with a tubular passage leading into the head
of the engine-cylinder and having an enlarged
cylindrical end P^9 , an electrode-rod Q^3 , mov-
5 ing in the tubular passage P^7 , and having a
cylindrical enlargement Q^6 , adapted to fit in
cylinder P^9 when the rod Q^3 is in retracted
position, an electrode q^4 secured on rod Q^3
and adapted to contact with electrode q' when

the rod Q^3 is thrust inward and a spring 10
for retracting the electrode-rod after contact
is made, all substantially as described, and
whereby the retracting rod is cushioned.

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Witnesses:

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