

M. EYQUEM.
SPARK PLUG FOR INTERNAL COMBUSTION ENGINES.
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940,448.

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Fig. 1.

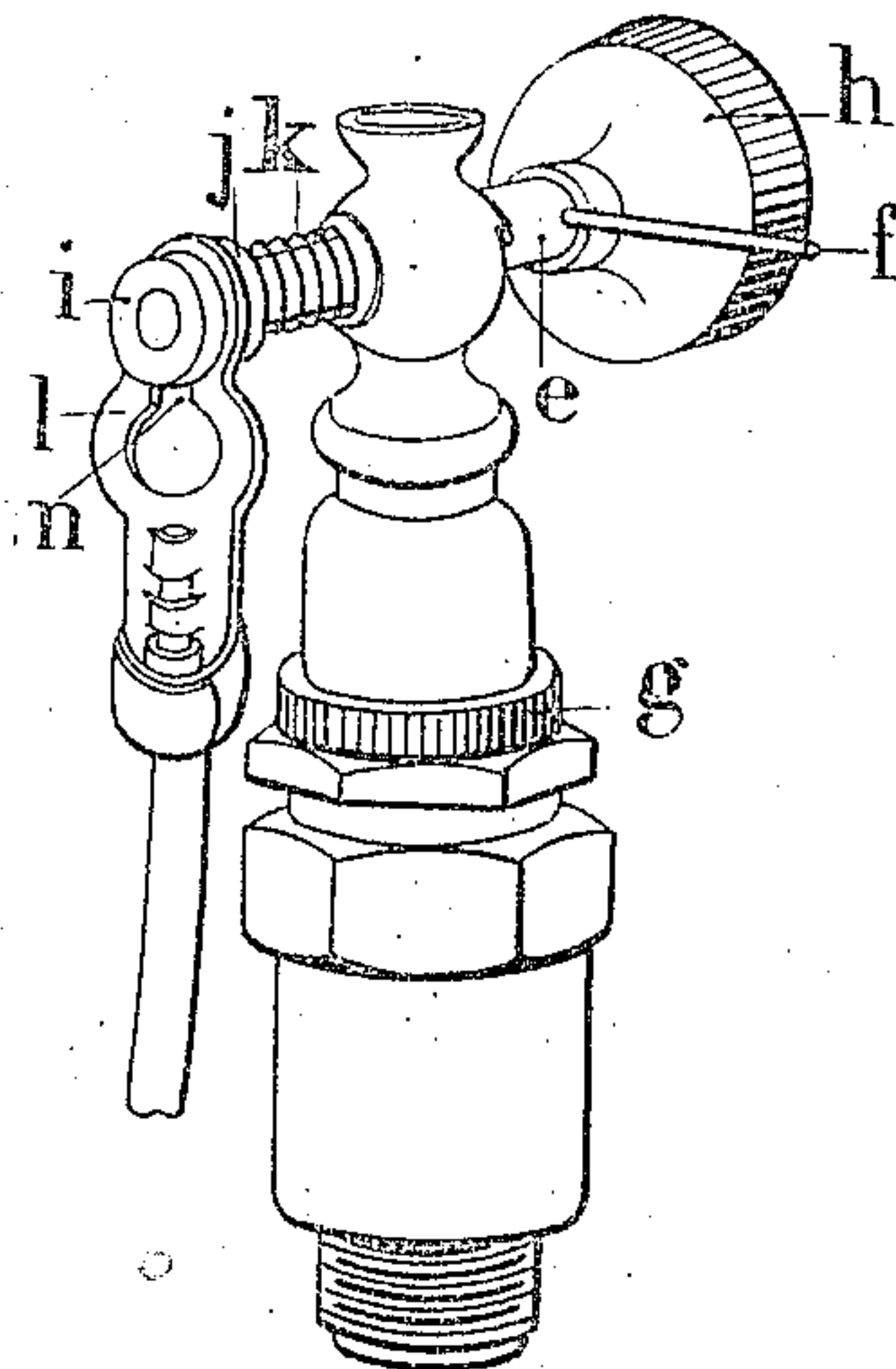
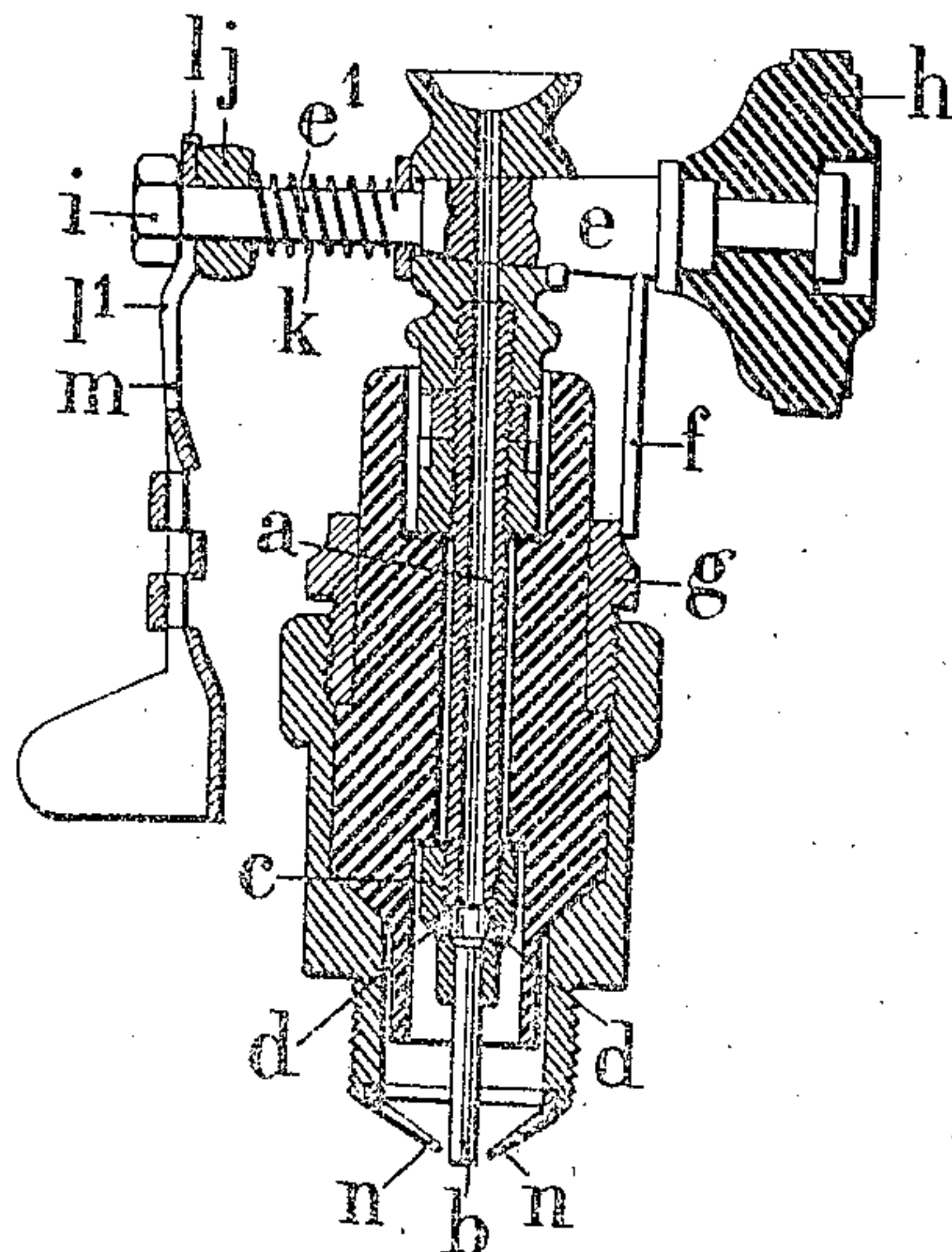


Fig. 2.



WITNESSES

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SPARK-PLUG FOR INTERNAL-COMBUSTION ENGINES.

940,448.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed April 28, 1908. Serial No. 429,616.

To all whom it may concern:

Be it known that I, MAURICE EYQUEM, of 191 Boulevard Pereire, in the city of Paris, Republic of France, manufacturer, have invented a Spark-Plug for Internal-Combustion Engines, of which the following is a full, clear, and exact description.

Spark plugs with a hollow electrode and a decompression cock to put the said electrode in communication with the atmosphere have already been proposed for the purpose of cleaning the plug in causing the burned gases to exhaust through the latter. These systems of plugs have not given good results because the porcelain of the plug being suddenly exposed to a very high temperature under the action of the still burning gases which pass through the same, is frequently broken and because the burned gases containing some carbon particles cannot produce a good cleaning.

The present invention relates to an improvement in a spark plug with a tubular electrode and a decompression cock for the purpose of producing the cleaning of the plug not by means of the burned gases but by fresh gases, that is to say by air containing particles of gasoline. This improvement is essentially characterized by the application to the plug of a device to cut off the ignition when the decompression cock of the spark plug is opened; in this case, the spark plug is traversed by a gaseous mixture consisting of air saturated with gasoline; the cleaning is then simultaneously effected by the escape of carbureted air through the spark plug, that is to say by blowing and by the action of liquid fuel upon the fat matters.

The device adapted to cut off the ignition when the cock of the spark plug is open is preferably constituted by a small metal rod mounted on the plug of the cock and in such manner that this rod will come in contact with the metal body of the spark plug when the cock is turned on, so as to form a short-circuit and thus cut off the ignition.

The accompanying drawing shows as an example a way of carrying out the present system of spark plug.

Figure 1 is a perspective view of the spark plug in the position it occupies in normal working. Fig. 2 is a longitudinal section showing the spark plug in its cleaning position.

This system of spark plug comprises a

hollow rod *a* at the end of which the electrode *b* is mounted through the medium of a joint *c* having holes connecting the hollow rod *a* and the internal part of the spark plug.

The hollow rod *a* is provided externally with a cock ending outwardly and on the plug of which is secured a contact rod or strip *f*. This rod *f*, the plug *e* and the barrel of the cock are of metal and in elastic connection with the hollow rod *a* upon which the electrode *b* is mounted.

The rod *f* is keyed upon the plug *e* so as to bear in the opening position of this cock, as shown in Fig. 2, against the metal barrel *g* of the spark plug and thus establish a short-circuit; the current then no longer flows through the electrode *b* and the ignition is thus cut off.

The plug *e* of the cock carries an operating button *h* of insulating material and is continued at its other end by a rod *e'* acting as a current conductor. For this purpose, this rod carries a stationary abutment *i* and a movable washer *j* which can slide and is pressed by a returning spring *k* against the stationary abutment *i*. The wire-clamp *l* having a key-hole shaped opening *m* (Fig. 1) is engaged between the stationary abutment *i* and the movable washer *j*.

In order to facilitate the engagement and removal of the wire-clamp, the adjacent edges of the stationary abutment *i* and of the movable washer *j* are slightly rounded and the wire clamp *l* has a shoulder *l'*, as shown in Fig. 2.

When the plug *e* of the cock is shut (Fig. 1) the rod *f* is removed from the metal body *g* of the spark plug and the sparks can strike in the usual manner between the electrodes *b* and *n*. When it is desired to clean the spark plug, the part *e* of the cock is turned so as to come to the position shown in Fig. 2; the rod *f* coming in contact with the metal body *g* establishes a short-circuit, the current then no longer flows through the electrode *b* and the ignition is thus cut off; furthermore, the hollow rod *a* being connected with the outer air, the carbureted air sucked into the cylinder is expelled without burning and escapes outwardly in passing between the electrodes *b* and *n*, through the holes of joint *c* and the hollow rod *a*; in this course, this air saturated with particles of gasoline or liquid fuel carries along the fat matters and the

carbon deposits which soil the electrodes and the inner walls of the spark plug.

Claims:—

1. A spark plug for the ignition of internal combustion engines, comprising a tubular electrode, a cock mounted on the latter and opening to the exterior, a short circuiting rod arranged on the plug of the cock and keyed so as to come in contact with the metal body of the spark plug when the cock is open, substantially as described.
2. A spark plug for the ignition of internal combustion engines comprising a hollow rod, a central electrode, a joint provided with holes on its periphery and securing the electrode to the hollow rod, a cock mounted upon the hollow rod and opening to the exterior, a short circuiting rod mounted on the plug of the cock, substantially as described.
3. A spark plug for the ignition of internal combustion engines, comprising a tubular electrode, a cock mounted on the latter and opening to the exterior, a short circuiting rod mounted on the plug of the cock, an operating button of insulating material

mounted at the one end of the cock plug, a current conductor at the other end of the cock plug, substantially as described.

4. A spark plug for the ignition of internal combustion engines, comprising a tubular electrode, a cock mounted on the latter and opening to the exterior, a short circuiting rod mounted on the plug of the cock, an operating knob or button of insulating material mounted at the one end of the cock plug, a current conductor rod constituting a continuation of the said plug, a contact abutment carried by said rod, a pressure washer movable on said rod and pressing against the contact abutment by a returning spring, and a wire clamp provided with an opening, substantially as described.

The foregoing specification of my spark plug for internal combustion engines signed by me this 17th day of April 1908.

MAURICE EYQUEM.

Witnesses:

H. C. COXE,
MAURICE H. PIGUET.