

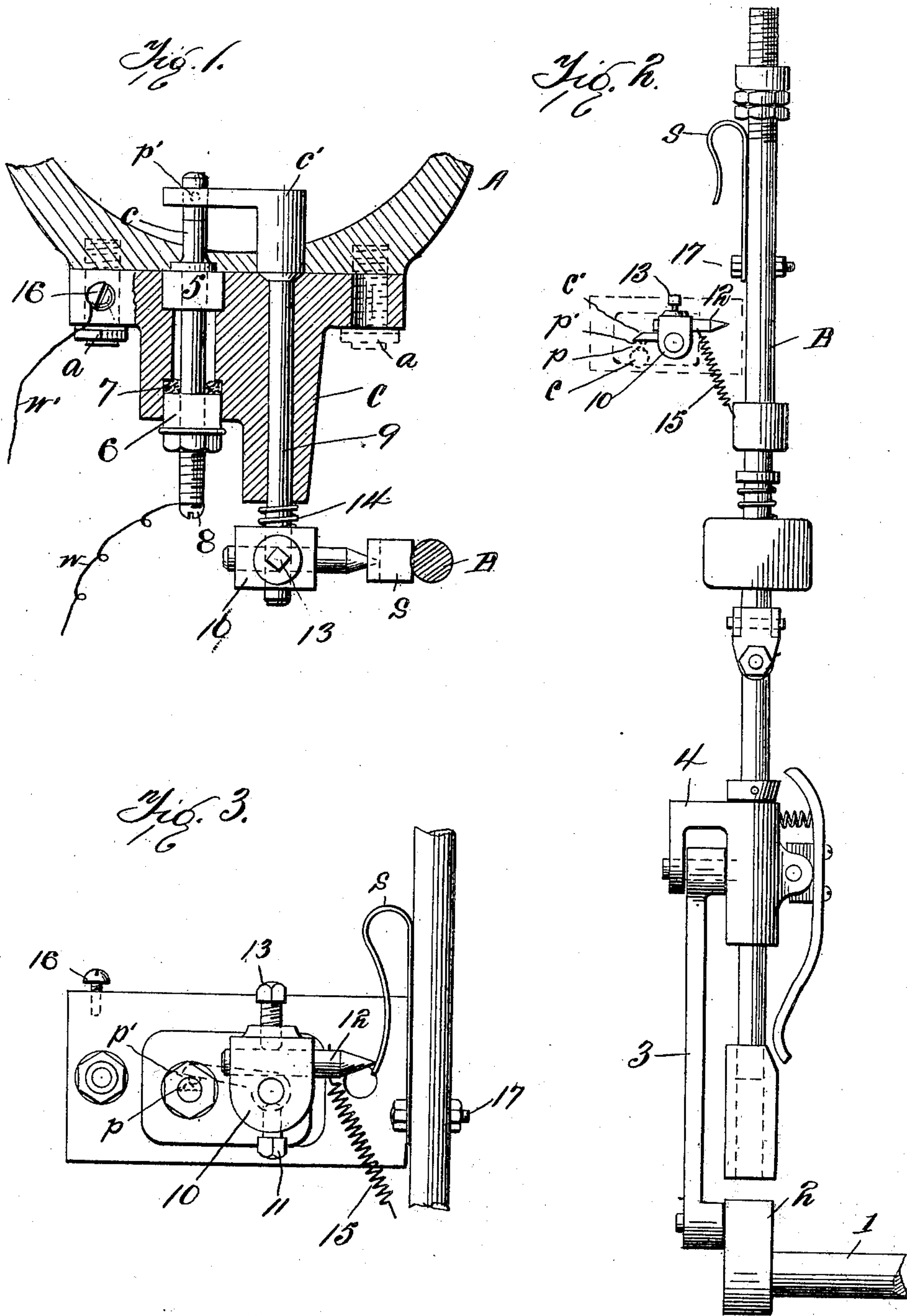
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H. H. & C. B. SEGNER.
SPARKER FOR EXPLOSIVE ENGINES.

(Application filed Sept. 13, 1901.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

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SPARKER FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 706,859, dated August 12, 1902.

Application filed September 13, 1901. Serial No. 75,244. (No model.)

To all whom it may concern:

Be it known that we, HARRY H. SEGNER and CHARLES B. SEGNER, citizens of the United States, residing at Hagerstown, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Sparkers for Explosive-Engines, of which the following is a specification.

Our said invention consists in various improvements in the details of construction and arrangement of sparkers for gasolene or other explosive engines whereby a very reliable sparker is provided and one that is both simple in construction and operation, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a horizontal section through the sparker base or frame, with a fragment of the engine-cylinder to show the manner of attaching said sparker; Fig. 2, a front elevation of a reciprocating rod carrying the device for operating the sparker and other attached parts; and Fig. 3, a view similar to a portion of Fig. 2, showing the parts in the relation they occupy when the circuit is closed.

In said drawings the portion marked A represents the engine-cylinder, B the reciprocating rod, and C the base of the sparker.

The cylinder A is or may be of any approved construction for use with an explosive-engine, being shown merely to illustrate the manner of attaching the sparker.

The rod B is the governor-operating rod and is connected to the driving-shaft 1 to reciprocate, by means of a suitable crank 2, connecting-rod 3, and sleeve 4 in a well-known manner.

The sparker base or frame C is a casting of suitable form to support the operating parts. It is attached to the upper end of the cylinder A by bolts *a*. It is provided with two horizontal perforations, which extend to within the cylinder, in one of which is mounted the stationary electrode *c* and in the other of which is mounted the movable electrode *c'*. The electrode *c* consists merely of a rod insulated from the frame by lava, (or other suitable insulating material,) washers 5 and 6, and

asbestos packing 7. On the top side, near its inner end, is mounted a hard platinum contact-point *p*, and a line-wire *w* is attached by means of a binding-screw 8 to its outer end. The electrode *c'* consists of a horizontally-extending arm mounted or formed on the inner end of a rock-shaft 9, which extends through the side of the cylinder and the base C and has a block 10 rigidly secured on its outer end by means of a set-screw 11, in which is mounted a horizontally-projecting arm 12, secured by a set-screw 13 and formed with a conical point. On the under side of arm *c'* is mounted a hard platinum point *p'*, directly over the contact-point *p* of the electrode *c*. A spring 14 is mounted between the block 10 and base C to keep the parts snugly seated, and a spring 15, attached to the under side of arm 12 and to a part on the engine-frame, normally holds the electrodes apart. A second or outgoing line-wire *w'* is attached to the base C by means of a binding-screw 16.

On the side of the reciprocating rod B is secured a spring 3 by means of a bolt 17, as shown. Said bolt passes through a slot in said spring, thus providing for means of adjustment. Said spring is of the form shown, its free end being bent downward away from the rod and in the form of a compound curve. It is adapted to contact with the conical point of arm 12 and lift the same, rock the shaft 9, and throw the inner end of electrode *c'* downward, so that the contact-points *p* and *p'* come together.

The operation is as follows: The engine being in operation, the rod B is driven rapidly up and down. On each downward movement the end of spring S strikes the point of arm 12, and as soon as it passes said point its spring force operates to lift the same to the position shown in Fig. 3, holding it in such position during the rest of the downward movement and until the spring passes said point on its next upward movement. As soon as spring S releases the point spring 15 operates to instantly snap the contact-points *p* and *p'* apart, causing the spark between them, which occurs at the time when the "charge" is in the cylinder ready to be exploded. We have found by experiment that this arrangement,

whereby the points p and p' are held in contact for the time required for both the downward and upward movement of the spring S , insures a reliable result. The entire time, owing to the great rapidity of motion of rod B , is but a moment, and a single motion of the parts is hardly sufficient to make a good contact, and a failure to spark upon separation results. The peculiar shape of the spring S overcomes the difficulty and makes sure a good spark at each motion of the rod.

Having thus fully described our said invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an explosive-engine, the electric sparker comprising a stationary electrode, a movable electrode, and a spring of the form described mounted on a rectilinearly-reciprocating rod and arranged to contact with a strike connected with said movable electrode and throw said movable electrode into contact with the stationary electrode, and then release the same, and means for separating said electrodes, substantially as set forth.

2. In an electric sparker for explosive-engines, the combination, of the base, the stationary electrode insulated from said base and connected with one wire of an electric circuit, a movable electrode adapted to contact with said stationary electrode, a strike thereon, a strike mounted on a rod, which rod is mounted to reciprocate in a fixed plane, said strike thereon being formed flexible and with a curved portion adapted to contact with the strike on the electrode and throw it into contact with the other to close the circuit and

hold it closed during the down-and-up movement of the rod, and means for breaking the contact suddenly when the strikes separate, substantially as set forth.

3. In an electric sparker for explosive-engines, the combination of the base, the stationary electrode mounted therein and insulated therefrom, one wire of an electric circuit connected therewith, the movable electrode mounted on a rock-shaft extending to the outside, a projecting strike carried thereby, and a spring mounted on a reciprocating rod alongside said strike to engage therewith, the spring having a curved portion adapted, and being of a form, to throw said electrode into contact with the stationary electrode on its down motion and hold the contact until freed therefrom on its up motion, substantially as set forth.

4. In an electric sparker for gasoline-engines, two electrodes adapted to be thrown together to close the circuit, and a spring on a rectilinearly-reciprocating part arranged and formed to strike a part and throw said electrodes into contact on one motion and hold them in contact until free therefrom on its return motion, substantially as set forth.

In witness whereof we have hereunto set our hands and seals at Hagerstown, Maryland, this 26th day of July, A. D. 1901.

HARRY H. SEGNER. [L. S.]
CHARLES B. SEGNER. [L. S.]

Witnesses:

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