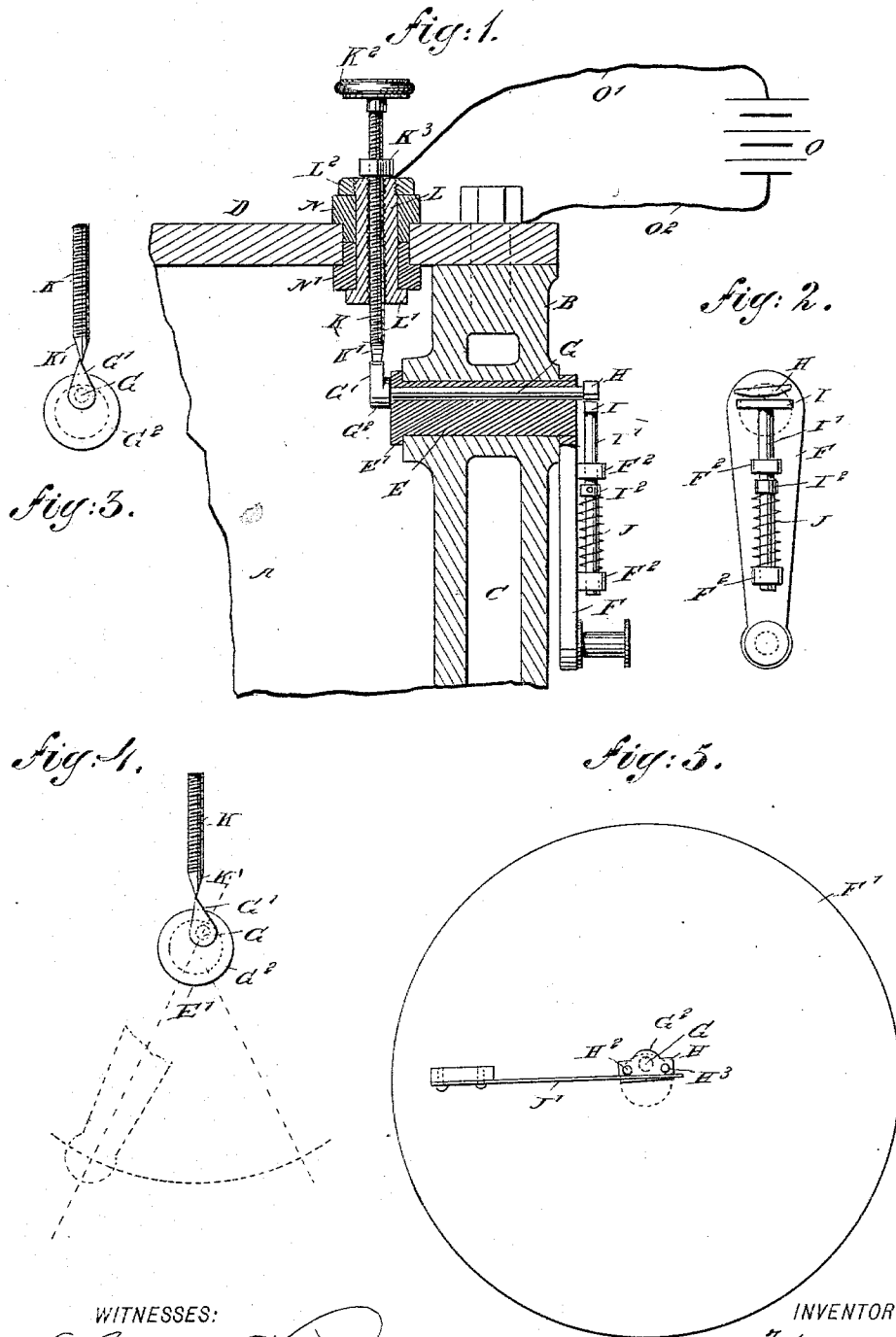


(No Model.)

F. S. MEAD.
ELECTRIC IGNITER FOR GAS ENGINES.

No. 546,238.

Patented Sept. 10, 1895.



WITNESSES:
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FRANK S. MEAD, OF MONTREAL, CANADA.

ELECTRIC IGNITER FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 546,238, dated September 10, 1895.

Application filed February 26, 1895. Serial No. 539,761. (No model.)

To all whom it may concern:

Be it known that I, FRANK S. MEAD, a citizen of the United States, residing at Montreal, in the Province of Quebec and Dominion of Canada, have invented a new and Improved Electric Igniter for Gas-Engines, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved electric igniter for gas-engines, arranged to give a strong snap-spark from the primary circuit of an electric battery to insure a positive ignition of the explosive mixture at the proper time, the igniter being comparatively simple, cheap to manufacture, and readily applied to any form of gas or oil engine.

The invention consists principally of a movable electrode mounted eccentrically on an oscillating or revoluble shaft or journal.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement as applied. Fig. 2 is a front view of the rocking arm and parts carried thereby. Fig. 3 is a face view of the two electrodes in contact. Fig. 4 is a similar view of the same at the point of breaking the contact, and Fig. 5 is a face view of a modified form of the improvement.

As illustrated in Fig. 1, the cylinder A of a gas or oil engine is provided in its wall B with the usual jacket C, the end of the cylinder being closed by the usual cylinder-head D. In the cylinder-wall B is mounted to rock a shaft E, connected at its outer end either with a crank-arm F, as illustrated in the said Fig. 1, to impart a rocking motion to the shaft E from any suitable part of the engine, or the said shaft E is provided with a wheel or disk F', receiving a rotary motion from a suitable part of the engine.

In the shaft E is mounted to turn eccentrically an electrode G, provided at its outer end with a cross-bar H, on which presses the head I, mounted on a rod I', fitted to slide in

suitable bearings F², formed on the crank-arm F. A spring J is coiled on the said rod I' and rests with one end on the lower bearing F² and with its other end on a collar I², secured on the rod I', so that the power of the spring causes the head I to press against the cross-bar H.

On the inner end of the electrode G, within the cylinder A, is secured an arm G', preferably pointed, as indicated in Figs. 3 and 4, and adapted to engage the pointed end K' of a fixed electrode K, preferably made screw shape, screwing in a sleeve L, held firmly in the insulating-bushings N N', as plainly illustrated in Fig. 1. The head L' of the sleeve L abuts against the lowermost bushing N', and on the upper threaded end of the sleeve L screws a nut L², resting on the top of the bushing N. A jam-nut K³ screws on the electrode K to securely fasten the latter in place over the electrode G', the electrode K being adjustable up or down in the sleeve L.

On the extreme upper end of the electrode K is secured a hand-wheel K² to enable the operator to screw the electrode up or down in the sleeve L to set the point K' of the electrode K in proper position relative to the point of the arm G' of the movable electrode G. The wire O' of a battery O is connected with the electrode K at the nut K³, the other wire O² of the said battery being attached to a part of the cylinder A. It will be seen that when a rocking motion is given to the shaft E by the crank-arm F then the latter, by the spring-pressed head I engaging the cross-bar H, causes the movable electrode G to move in line with the crank-arm F, whereby the arm G' of the said electrode is moved in contact with the point K' of the fixed electrode K, then by turning in its bearing in the shaft E to finally pass the latter and to produce the spark for igniting the explosive mixture in the upper end of the cylinder. A similar result is obtained when a complete rotary motion is given to the shaft E by the disk F', the latter being provided in this case with a flat spring J', pressing on pins H² H³, secured on the head H', fastened on the movable electrode G. It will be seen that by this arrangement the movable electrode may be given a snap necessary for properly throwing out a primary spark, while at the same time the

spring connected with the said electrode is not in any way exposed to undue heat, which would destroy its efficiency; and the movement of the point or arm of the electrode can at all times readily be seen by observing the position of the cross-bar H, which stands at right angles to the arm G'.

By the arrangement described the operator is enabled to adjust the arm G' from the outside by shifting the cross-bar H correspondingly relative to the head I. The arm G' is provided with an annular flange G³, and a similar flange E' is formed on the inner end of the shaft E, so that the said flanges close upon their respective parts by pressure in the igniting-chamber, so as to prevent escape of gases through the bearings of the shaft E and the electrode G. If, however, it is desired, suitable stuffing-boxes may be placed at the outer ends of the shaft E and electrode G.

It will further be seen that the manner of inserting the insulator for the fixed electrode is comparatively simple and at the same time secures and permits it to be placed in any part of the cylinder-head desired.

I do not limit myself to the exact construction shown and described, as the same may be varied without deviating from my invention.

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

1. An electric igniter for gas engines, comprising a fixed electrode and a movable electrode mounted eccentrically on an oscillating or revoluble shaft or journal, substantially as shown and described.

2. An electric igniter for gas engines, provided with a movable electrode mounted eccentrically on an oscillating or revoluble shaft or journal, substantially as shown and described.

3. In an electric igniter for gas engines, a revoluble rocking shaft or journal, bored eccentrically for carrying an electrode, substantially as shown and described.

4. In an electric igniter for gas engines, an electrode having a cross bar, and a spring-pressed head in engagement with the said cross bar and serving to normally hold the said electrode in one position relative to the axis of the said head, substantially as shown and described.

5. In an electric igniter for gas engines, an eccentrically mounted movable electrode, a shaft eccentrically carrying the said electrode, and a spring arranged to hold the said electrode normally in one position relative to the means for rotating or oscillating the said shaft, substantially as shown and described.

FRANK S. MEAD.

Witnesses:

LEWIS P. MEAD,

FRANK E. MEAD.