

(No Model.)

2 Sheets—Sheet 1.

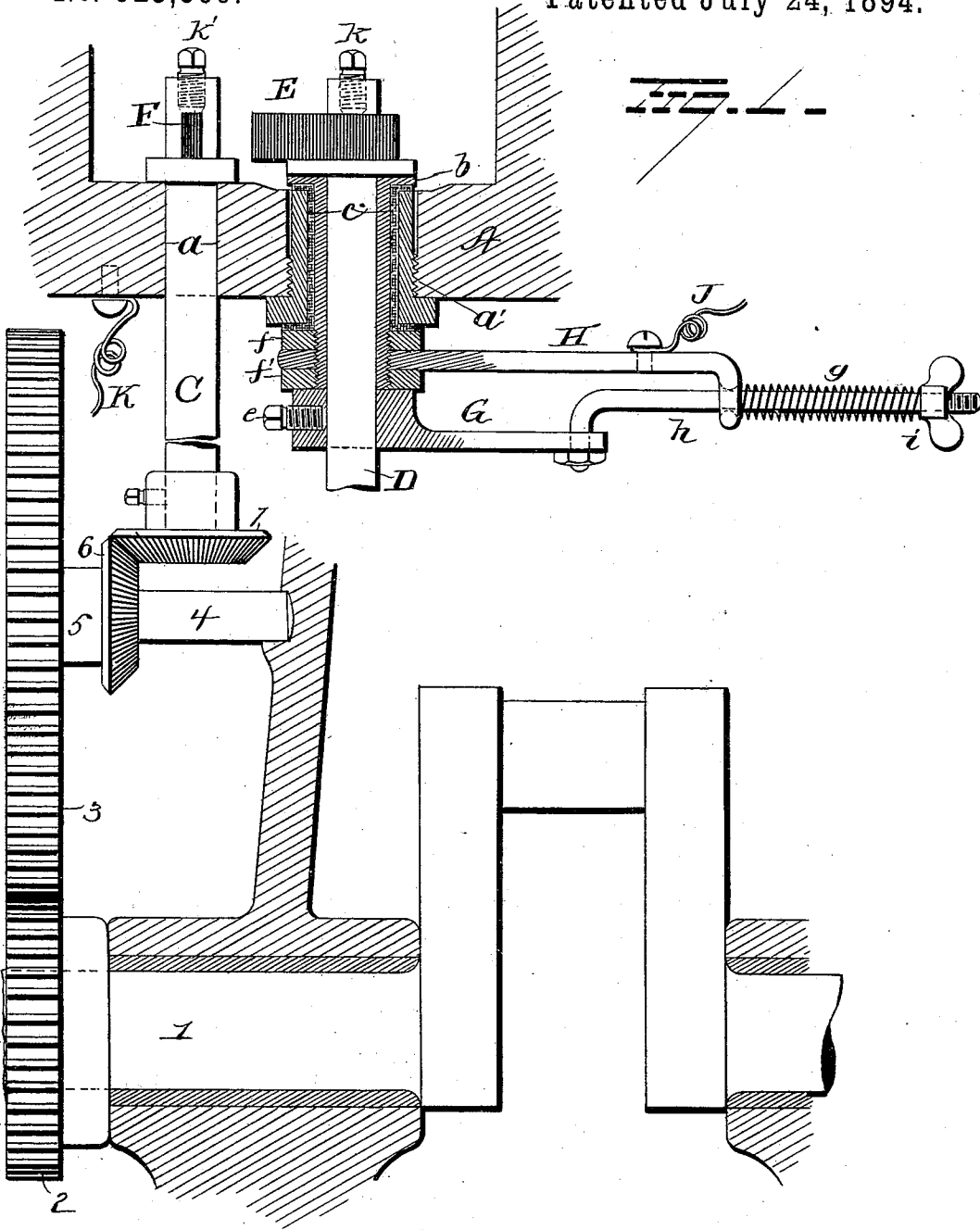
A. J. PAINTER, Dec'd.

N. PAINTER, Administratrix.

ELECTRICAL IGNITING DEVICE FOR GAS ENGINES.

No. 523,369.

Patented July 24, 1894.



Witnesses  
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 Attorneys

(No Model.)

2 Sheets—Sheet 2.

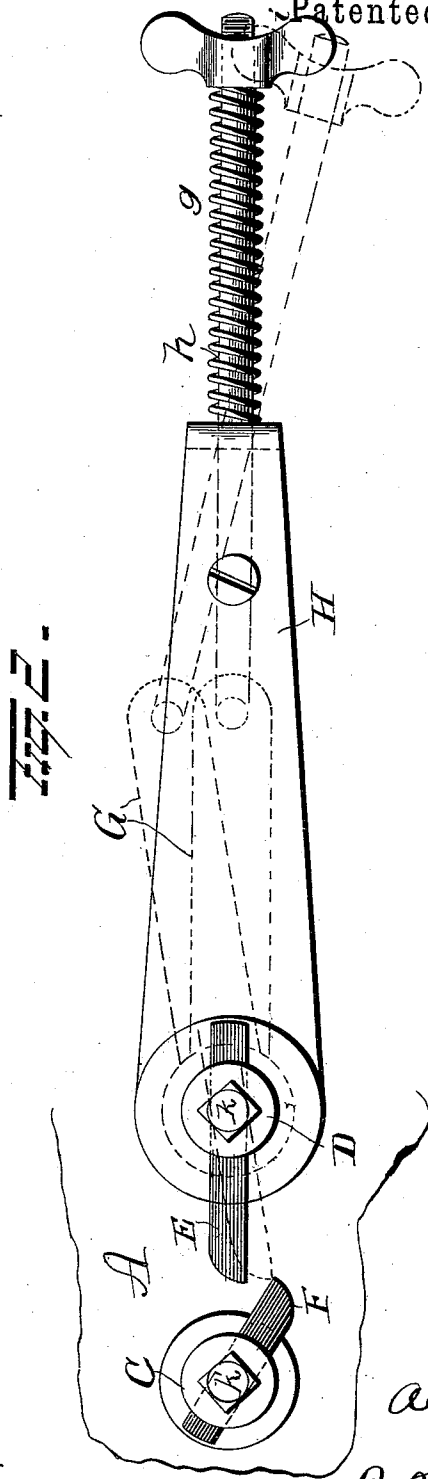
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# UNITED STATES PATENT OFFICE.

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ADMINISTRATRIX OF ALONZO J. PAINTER, DECEASED.

## ELECTRICAL IGNITING DEVICE FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 523,369, dated July 24, 1894.

Application filed July 28, 1893. Serial No. 481,696. (No model.)

*To all whom it may concern:*

Be it known that I, ALONZO J. PAINTER, a resident of Pasadena, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Electrical Igniting Devices for Gas-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in igniters for gas engines,—the object of my invention being to so construct an igniter for a gas engine that small contact points or electrodes and springs within the ignition chamber will be provided, and to construct said contacts or electrodes of such size, shape and material as to be capable of withstanding the excessive heat and wear within the ignition chamber, and also to so construct the device that the contacts or electrodes can be easily adjusted or replaced when worn out, without disturbing the other parts of the engine.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view partly in section illustrating my improvements. Fig. 2 is a plan view of the igniting device.

A represents plate or head, through the walls of which, openings *a a'* are made, in one (or both) of which an insulated bushing *b* is inserted, between which and the plate *A* insulating material *c* is inserted, thereby electrically insulating the shafts *C* and *D* from each other. The shaft *D* (or both shafts) are passed through the sleeve and head *A*, and each shaft is provided at its inner end with a contact finger, *E* and *F*, said contact fingers preferably having curved faces, forming edges *d d'* which, when the device is operated make contact with each other.

Mounted on the outer projecting end of the shaft *D* and secured thereto by means of set screws, *e*, is a laterally projecting arm *G*. A curved arm *H* is secured at one end to the

bushing, *b*, by means of the lock nuts *f f'* and terminates, approximately in line with the end of and somewhat above the horizontal, or laterally projecting arm *G*. A coiled spring *g* is connected on the stem *h*, between the arm *H* and the thumb screw *i*, thereby holding the contact finger *E* on the end of the shaft *D* in the position shown in Fig. 2, but permitting said contact finger to yield when engaged by the contact finger *F* which revolves, or oscillates, as presently explained.

The shaft *C* is made to revolve by means of gears, or otherwise (which may be held in position by set screws) in order to make contact of the fingers *E* and *F* at any desired moment. The shaft *C* carries the finger *F* which makes contact with the finger *E*, either by rotating or oscillating movement. By connecting the fingers *E* and *F* to the shafts *C* and *D* by means of set screws *k k'* the fingers may be moved forward or adjusted to compensate for wear.

A convenient manner of transmitting motion to the shaft *C* is shown in Fig. 1 of the drawings,—wherein 1 represents the crank shaft of the engine on which a gear 2 is secured and adapted to transmit motion to a gear 3 mounted on a shaft 4. The hub 5 of the gear 4 carries a bevel pinion 6 adapted to transmit motion to a bevel pinion 7 on the shaft *C*.

It will be seen that when the shaft *C* is rotated (or oscillated, as the case may be) the contact finger *F* will make contact with the finger *E* and continuing to wipe past or out of contact with the finger *E*, at which instant an electric spark will be produced by means of a battery and spark coil (or otherwise) in the ignition chamber *I*, thereby igniting the gas. The contact fingers are included in an electric circuit (by means of the wires *J* and *K*), which will remain normally open, the terminals of said circuit, being electrically connected with the shafts *C* and *D*, which are electrically insulated from each other excepting when the fingers *E* and *F* are in contact.

By connecting and arranging the devices as above set forth, small contact points, or electrodes and springs within the ignition chamber will be avoided and the contact fingers, or electrodes, *E* and *F* may be made of

such size, shape and material as to be capable of withstanding the excessive heat and wear within the ignition chamber, and easily adjusted or connected when worn without disturbing the other parts of the engine.

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

1. The combination with the ignition chamber of a gas engine having opening in the wall thereof, of an insulated metallic sleeve passing through one of said openings, a shaft passing loosely through said sleeve, an arm connected to said shaft, an arm secured to the casing of the ignition chamber, a spring connecting said arms, another shaft projecting into the ignition chamber and contacts carried by said shafts, substantially as set forth.
2. The combination with the ignition chamber of a gas engine having opening in the wall thereof, of a bushing of insulating ma-

terial in one of said openings, a metallic sleeve in said bushing, a contact carried by said shaft, an arm carried by one of said shafts, an arm secured to the casing of the ignition chamber, and a spring connecting said arms, substantially as set forth.

3. In an igniting device, the combination with two shafts adapted to pass into the ignition chamber of a gas engine and insulated from each other, of an arm secured to the casing of the engine, a crank arm connected to one of said shafts, a stem connecting the two arms loosely together and a spring on this stem effecting a yielding connection between the two arms.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ALONZO J. PAINTER.

Witnesses:

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W. J. TEESDALE.