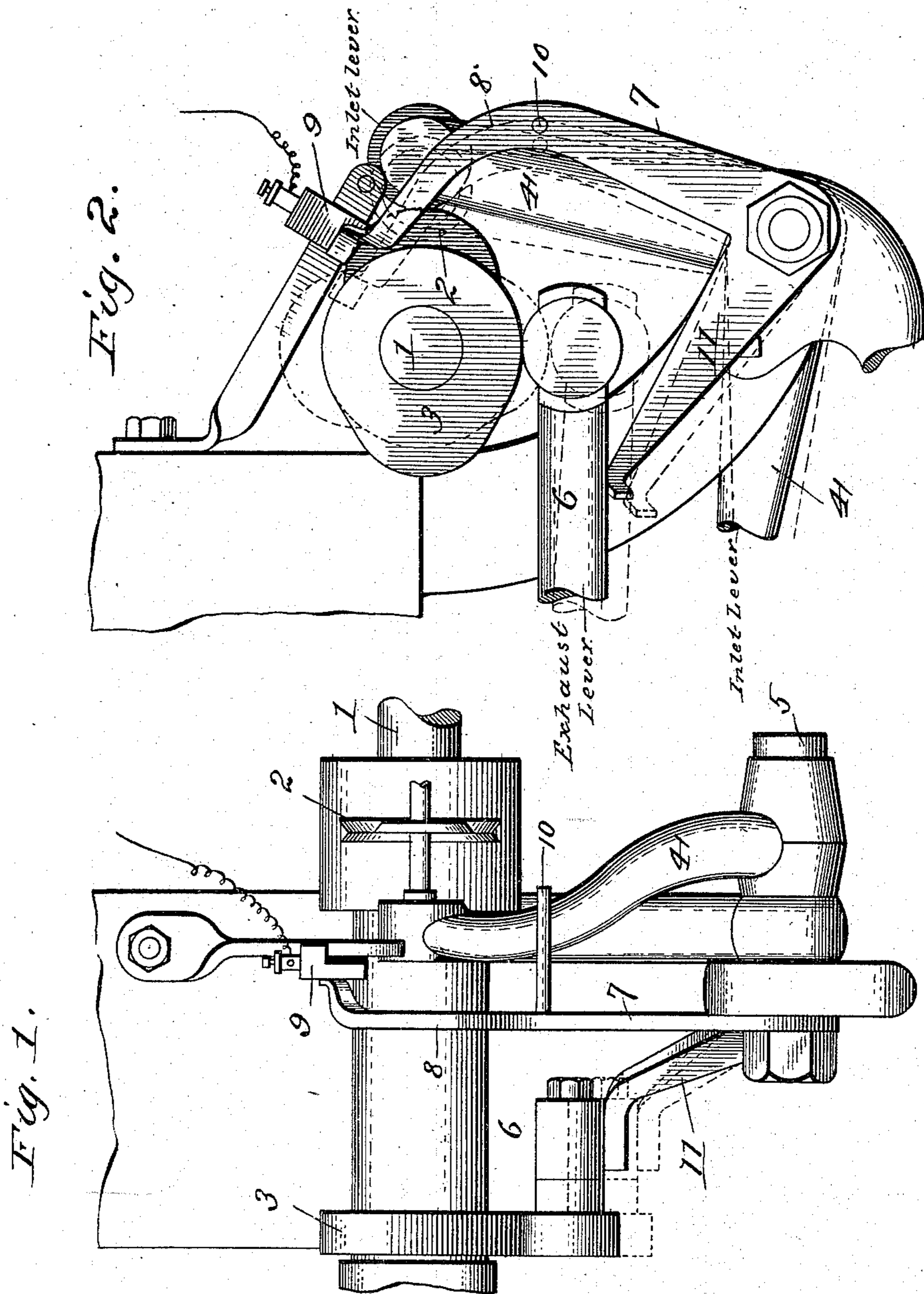


(No Model.)

F. J. RETTIG.  
IGNITER FOR GAS ENGINES.

No. 573,296.

Patented Dec. 15, 1896.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## IGNITER FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 573,296, dated December 15, 1896.

Application filed March 5, 1896. Serial No. 581,964. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK J. RETTIG, a citizen of the United States, residing at North Manchester, in the county of Wabash and State of Indiana, have invented certain new and useful Improvements in Igniters for Gas-Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 In the drawings, Figures 1 and 2 are respectively front and side elevations of my improved current-controller for electric gas-engine sparkers.

15 The object of this invention is to provide an extremely simple device to be used in connection with an electric sparker, especially the kind shown in the Lambert patent, No. 536,287, dated March 26, 1895, whereby the electric circuit in which the sparker is arranged is kept open during every stroke of the piston, except the one on which the charge is taken, when it is momentarily closed to permit the spark to be made, thereby materially saving the battery-power, as more fully hereinafter set forth.

25 Referring to the drawings by numerals, 1 is a cam-shaft on which are mounted the usual cams 2 and 3, and which is rotated in the usual manner from the main shaft of the engine. The cam 2 is adapted to operate at the proper instant the gas-inlet lever 4, which is pivoted on a pin 5, supported on a suitable stationary part of the engine, and the cam 3 is adapted to depress at the proper moment the exhaust-lever 6, said levers being connected up to their respective valves in the usual manner and being timed so as to operate the valves at the proper instant. Pivoted on the stationary pin 5 is an angle-lever 7, whose upright arm 8 is bent so as to come into contact with the contact-plate 9, and is also provided with a horizontal pin 10, which extends in front of the upright arm of the inlet-lever 4. The other arm, 11, of the angle-lever 7 extends inward under the exhaust-lever 6 and supports or assists in supporting the exhaust-lever up against its cam. The contact-plate is suitably insulated from the engine and is connected up to one of the battery-wires, the other battery-wire being connected to the in-

55 sulated electrode of the sparker in the usual manner.

It will be observed that when the angle-lever 7 is brought into contact with the contact-plate 9 the current will pass through the lever into the engine-frame and over the electrodes. In operation it will be observed that the opening of the inlet-valve by the lever 4 will swing the arm 8 of the angle-lever into contact with the insulated plate 9 and at the same time raise the exhaust-lever against its cam 3. The parts will be held in this position until the cam 3 depresses the exhaust-lever, whereupon the arm 8 will be thrown off the contact-plate and the current interrupted. In this manner it will be observed the circuit is only closed when gas is taken and is kept closed only so long as is necessary to produce the spark, whereby a considerable saving in the current is obtained.

70 The object in pivoting the controlling-lever 7 independently of the inlet-lever 4 is to permit the latter to swing back to its normal position after the passage of its operating-cam 2 independently of the controlling-lever, this lever being shifted off the contact-plate by the exhaust devices. It will be observed that the lateral pin 10 is the means whereby the inlet-lever is caused to engage the controlling-lever 7.

80 In this class of engines it has been customary to spark at every other movement of the piston, the mechanism being so timed that the spark will be produced at every other movement of piston whether gas be taken or not. The present improvement is designed to close the circuit only when gas is taken, whereby it will only be possible to produce a spark after each charge of gas, no matter how infrequently the charges be taken. In this way from fifty to seventy-five per cent. of the battery-power is saved.

85 Having thus fully described my invention, what I claim is—

1. In a current-controlling device for gas-engines, the combination of the inlet and exhaust levers and means for operating the same, an insulated contact-plate connected to one of the battery-wires, and a lever engaging the inlet and exhaust levers and adapted to 100

be shifted onto the contact-plate by the inlet-lever and removed therefrom by the exhaust-lever, substantially as described.

2. In a current-controller for electric gas-engine sparkers, the combination of the exhaust and inlet levers, the cams for operating the same, an insulated plate connected to one of the battery-wires, and an angle-lever pivoted independently of the inlet-lever and adapted to engage both the inlet-lever and the exhaust-lever and adapted to be shifted onto the contact-plate, substantially as described.

3. In combination with a gas-engine, and a gas-inlet lever and means for operating it, of an insulated contact-plate connected to one of the battery-wires, and a circuit-closing lever and means for shifting said lever onto the contact-plate when the inlet-valve is opened, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK J. RETTIG.

Witnesses:

PET PARENT,

HARVEY E. LONGENECKER.