(No Model.)

L. M. BOURGEOIS, Jr.

ELECTRIC IGNITER FOR GAS ENGINES.

No. 564,182. Patented July 21, 1896.

Fig. 1

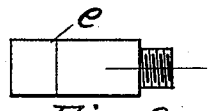

Fig. 2

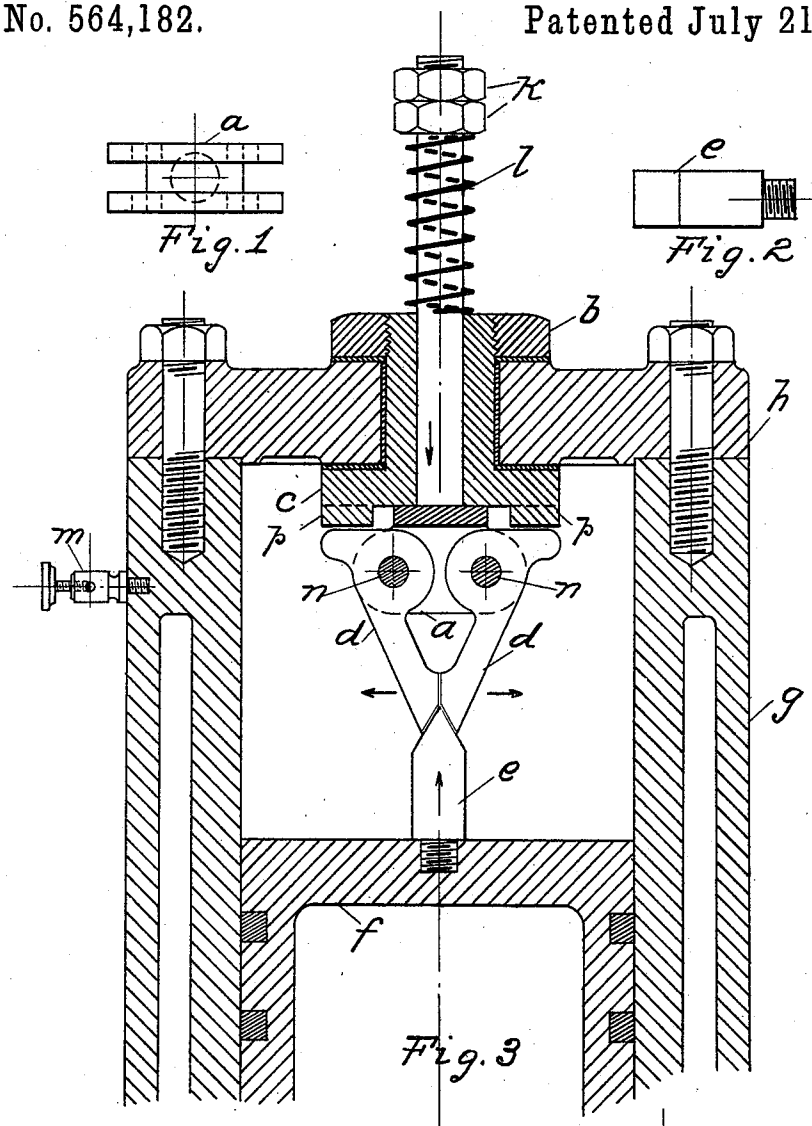

Fig. 3

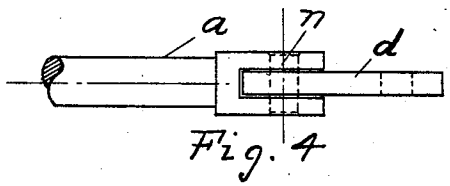

Fig. 4

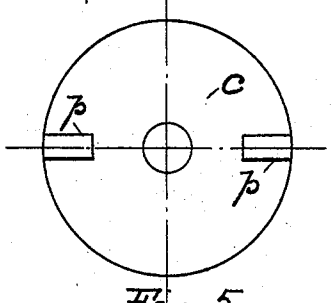

Fig. 5

WITNESSES:

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UNITED STATES PATENT OFFICE.

LOUIS M. BOURGEOIS, JR., OF NEW ORLEANS, LOUISIANA.

ELECTRIC IGNITER FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 564,182, dated July 21, 1896.

Application filed June 7, 1895. Serial No. 552,011. (No model.)

To all whom it may concern:

Be it known that I, LOUIS MARCELLUS BOURGEOIS, Jr., a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Improvement in Electric Igniters for Gas-Engines, of which the following is a specification describing it so that others skilled in the arts to which it pertains may construct and use same.

My invention relates to improvements in electric igniters in which a pair of bent levers pivoted in a vertically-sliding rod working in the cylinder-head operate in connection with a tapered bar attached to the piston of the engine, a spring being provided on the outside of cylinder attached to the aforementioned sliding rod to produce sufficient tension necessary for the operation of the igniter. The tapered bar being brought in contact with the bent levers and withdrawn therefrom alternately, an electric spark is produced, the two electrodes being previously connected to a suitable battery.

My object is to provide an igniter in which the surfaces making the electrical contact are kept clean from oxidation or other obstructions of a non-conducting character, and also to make it possible to adjust the tension which is necessary to bring the sliding rod back to its position when it has been acted upon by the tapered bar, said adjustment being possible on the outside of the cylinder of the engine. I attain these objects by the mechanism shown in the following drawings, in which—

Figure 1 is an end view of the slotted head and rod designated by letter *a* in Fig. 3. Fig. 2 is a side view showing one side of the tapered bar *e*. Fig. 3 is a partial longitudinal section through a gas-engine cylinder, showing my igniter attached. Fig. 4 is a view showing one side of the rod and head *a*, having one of the bent levers attached. Fig. 5 is an end view of the gland *c*, showing the lugs *p p*.

Fig. 3 is a gland having a flange at one end with the lugs *p p* on the face of flange. The other end of gland is provided with a screw-thread and nut *b*, so as to fasten the gland in cylinder-head *h*, and being insulated therefrom so as to prevent the passage of the electric current from the rod *a* and gland *c* to the cylinder.

a is a rod working in the gland *c*, having a slotted head at one end and its other end threaded and provided with two nuts *k k*. The bent levers *d d* are pivoted in the slotted head of rod *a* and work in conjunction with the tapered bar *e*, placed in the piston *f*. The piston, traveling in the direction shown by the arrow on *e*, spreads the bent levers *d d*, as indicated by the arrows, and the short end of the bent levers *d d* being fulcrumed on the lugs *p p*, the pivots *n n* are carried down in the direction shown by the arrow on the rod *a*, the tension necessary to keep them in contact with *e* being provided by the spiral spring *l*. The edges of levers *d d* and the tapered bar *e*, being brought into contact at every stroke, are kept clean from oxides or other non-conducting matter which would tend to prevent the passage of the electric current from one electrode to the other. Upon the reversal of the direction of piston travel the tapered bar *e* is withdrawn from the levers *d d*, thus breaking contact and producing a spark, thus igniting the explosive gas contained in the cylinder. The electric current is led to the two electrodes described from a suitable battery by means of two metal rods or wires, one being fastened to binding-post *m*, attached to cylinder *g*, and the other being attached to the sliding rod *a*, being fastened between the two nuts *k k*.

I have made application, now pending, Serial No. 544,441, filed April 4, 1895, for a patent on an igniter in which I use the gland and sliding rod, but otherwise different in operation.

I therefore specify what I claim, and desire to secure by Letters Patent, as follows:

1. The combination in an electric igniting device of a rod sliding in a gland, properly insulated from cylinder of engine, with a pair of bent levers pivoted to sliding rod, and a tapered rod fixed to piston, acting in conjunction with bent levers substantially as described.

2. The combination in an electric igniting device, of a rod sliding in a gland properly insulated from cylinder, rod having a pair of bent levers pivoted thereto, with a spiral spring encircling the sliding rod, said spiral spring being adjustable by means of nuts working on rod, substantially as described.

LOUIS M. BOURGEOIS, JR.

Witnesses:

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