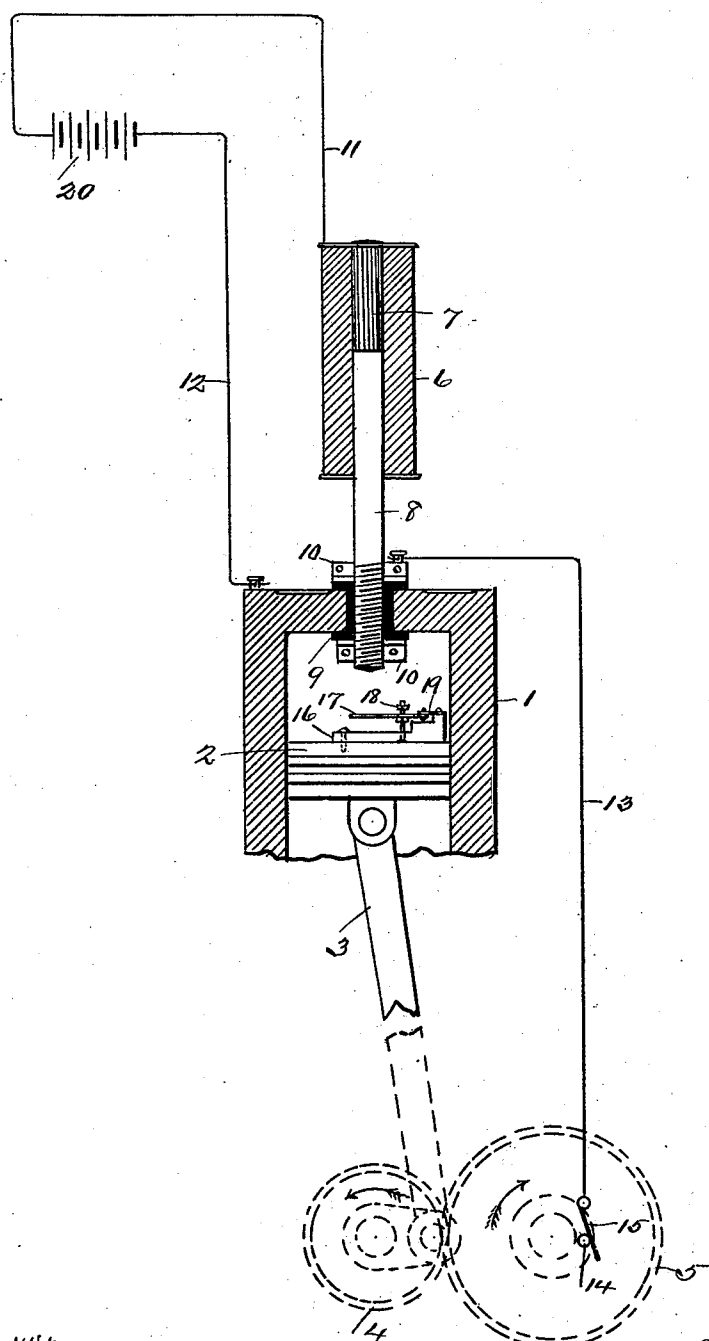


(No Model.)

J. LOW & J. W. GOW.  
ELECTRIC IGNITER FOR GAS ENGINES.

No. 515,297.

Patented Feb. 20, 1894.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JOSHUA LOW AND JAMES WILLIAM GOW, OF STEUBENVILLE, OHIO.

## ELECTRIC IGNITER FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 515,297, dated February 20, 1894.

Application filed May 13, 1893. Serial No. 474,154. (No model.)

*To all whom it may concern:*

Be it known that we, JOSHUA LOW and JAMES WILLIAM GOW, citizens of the United States, residing at Steubenville, in the county of Jefferson and State of Ohio, have invented certain new and useful Improvements in Electric Igniters for Gas-Engines; and we 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 pertains to make and use the same, reference being had to the accompanying drawing, which forms a part of this specification.

Our invention relates to an improved electric igniter for gas engines, and consists in an apparatus constructed without the use of springs in the explosion chamber, whereby the gas is ignited; together with certain details of construction, and combination of parts as will be fully described hereinafter.

In the accompanying drawing we have shown a diagram view of our improved igniter for gas engines, which is constructed and arranged in accordance with our invention.

To put our invention into practice with a gas engine consisting of the cylinder 1, the vertically moving piston 2 operating therein; the piston rod 3, operating the gear wheels 4—5, together with the other well known feature of this class of engines—we provide a coil 6 having a soft metal core 8 projecting downward from the same, and securely attached in the top of the cylinder 1, by means of an insulating piece 9, and nuts 10 arranged on the threaded end of the said core 8. The upper portion 7 of this core is composed of a number of fine wires in order to strengthen the power of the coil 6 when converted into a magnet by completing a circuit to the battery 20. Attached to one of the gear wheels 5 operated by the piston 2 is a pin 14 adapted to be brought in contact with a metallic brush 15 at each revolution of the said wheel 5. Connected to this brush 15 is a conductor 13, the other end of which is attached to the upper nut 10 on the core 8. Another wire 12 is connected to the cylinder 1 or other portion of the engine, and in circuit with the battery 20. The other pole of this battery is connected by a wire 11 to the coil 6. This circuit as described is for the purpose of converting the

coil 6 into an electro magnet when the brush is brought in contact with the pin 14.

Attached on the top of the piston 2 is a piece 16 for the purpose of supporting a vibrating contact 17. This contact 17 consists of a metallic strip attached to the piece 16 by a flexible connection 19 in a manner that the same may move a limited distance upward until stopped by the nut 18 attached to a vertical post.

In operation, the piston 2 moving vertically, revolves the gear wheels 4—5 in a manner well known to the art. The gear 5 having twice the circumference as the small one 4 will bring the pin 14 in contact with the brush 15 at every double stroke of the said piston 2 as it is common in this class of engines to explode the gas at every double stroke of the piston. When this contact 14—15 has been made a circuit has been completed to the battery, through the wire 12, to and through the metallic parts of the engine to the pin 14, to the brush 15, wire 13 to nut 10, from thence through the core 8 to the coil 6 and wire 11 to the battery 20. When this circuit has been completed the coil 6 is converted into an electro magnet and the piston having moved upward brings the contact 17 within the influence of the core 8, and attracts the same to make a contact, and complete another circuit before the first circuit has been broken by the two contacts 14—15 separating. This last completed circuit commencing at the battery through the wire 12 to the cylinder 1, through the same to the piston 2, to the contact 17, thence through the core 8 and coil 6 to the wire 11 and the battery 20. At the return stroke of the piston 2 the contact between the core 8 and contact piece 17 is broken which produces a spark to ignite the gas to drive the piston downward.

If desired a permanent magnet may be used in place of the electro magnet described, and we may dispense with the contacts 14—15, but we prefer to use the electro magnet, as the same is more lasting.

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

The combination consisting of the cylinder having a piston operating therein, of an elec-

tro magnet having its core projecting into the  
said cylinder and insulated therefrom, a means  
for completing a circuit for the said magnet,  
a contact 17 arranged on the said piston adapt-  
5 ed to be brought within the influence of the  
said magnet, whereby a spark may be produced  
when the said contact 17 is made and broken  
with the core of the magnet, as and for the  
purpose described.

In testimony that we claim the foregoing we do  
hereunto affix our signatures this 18th day of  
April, A. D. 1893.

JOSHUA LOW. [L. S.]  
JAMES WILLIAM GOW. [L. S.]

In presence of—

JAS. J. MCAFEE,  
H. J. LEVIS.