

(No Model.)

P. A. N. WINAND.

ELECTRICAL IGNITOR FOR GAS OR HYDROCARBON ENGINES.

No. 507,515.

Patented Oct. 24, 1893.

Fig. 1.

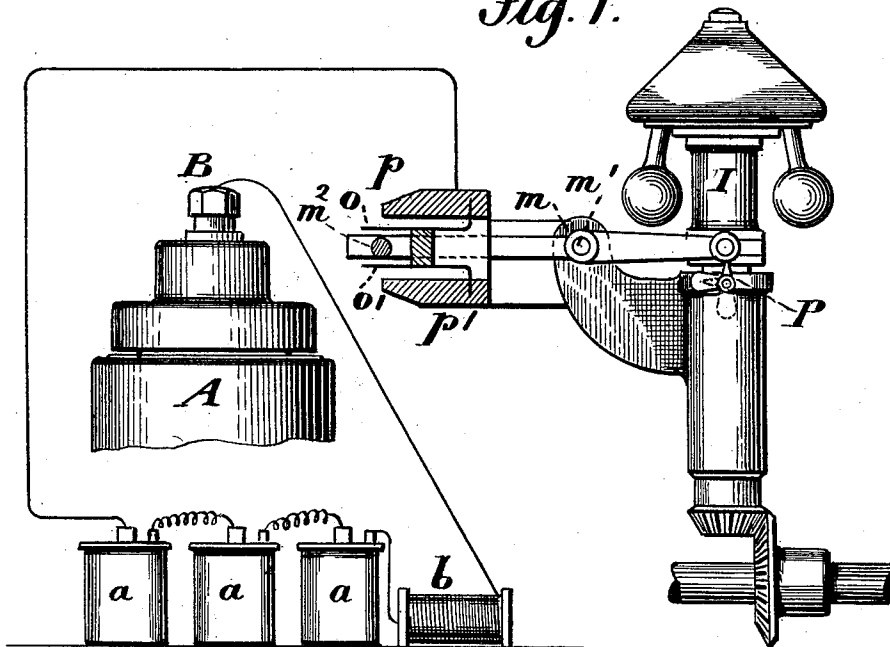
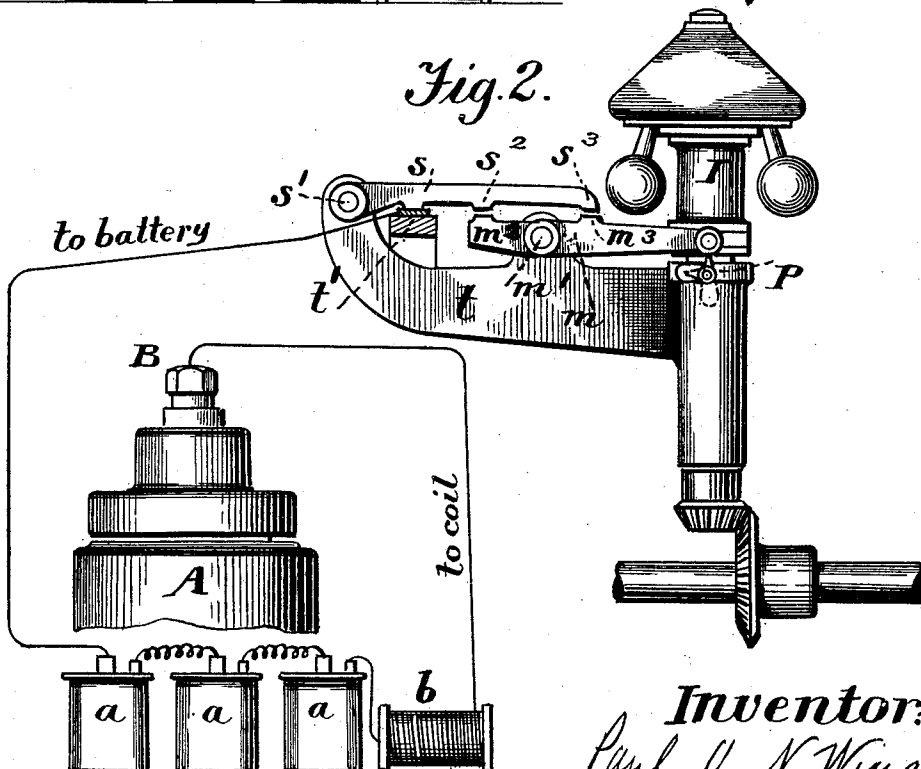


Fig. 2.



Witnesses:
A. Ruppert.
E. Case.

Inventor:
Paul A. N. Winand,
by *[Signature]*
Atty.

UNITED STATES PATENT OFFICE.

PAUL A. N. WINAND, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRICAL IGNITOR FOR GAS OR HYDROCARBON ENGINES.

SPECIFICATION forming part of Letters Patent No. 507,515, dated October 24, 1893.

Application filed March 10, 1892. Serial No. 424,442. (No model.)

To all whom it may concern:

Be it known that I, PAUL A. N. WINAND, a subject of the King of Belgium, but now residing in the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electrical Ignitors for Gas or Hydrocarbon Engines, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The invention relates to that class of gas or hydrocarbon engines in which the movement of the piston is effected by the explosion of charges of mixed air and gas ignited by electric sparks, the current of electricity being produced by a primary or a storage battery. When the current of a primary or storage battery is used for the ignition, it may happen that while the engine is at rest the circuit is closed through the ignitor, thus allowing the battery to run out. In order to prevent this, I use a switch actuated in such a way that when the stop-cock or the governing valve on the gas or fuel supply of the engine is shut off the circuit of the ignitor is open and that it is closed when the cock or the valve admits fuel to the engine.

My invention consists in the constructions and combinations hereinafter described and claimed.

Figure 1, is a part elevation showing my invention. Fig. 2, is a similar view showing a modified construction.

In Fig. 1, A is the motive cylinder or combustion chamber. One terminal of the battery a, a, a , is connected through the coil b , to the fixed insulated contact piece B. I, is the centrifugal governor controlling the supply of gas to the engine. A lever m is fulcrumed at m' and moved by the governor in the ordinary manner. Two springs o and o' are supported by metallic pieces p and p' , and bearing against a metallic contact piece r . The metallic pieces p and r are individually insulated, and p is connected to one terminal of the battery. The piece p' is connected with the metallic body of the engine. A stud m^2 , carried by the lever m , is made of, or covered with, insulating material. When the engine is running normally, the governor stands in

the position shown, and the stud m^2 is equidistant from the springs o and o' . The current then flows from p through o to r , and farther through o' to p' which is connected to the frame of the engine. Since the stud m^2 does not touch either spring o or o' the governor is free to move, and is not interfered with in its normal working by the presence of the electrical device. But when the engine runs too fast the stud m^2 strikes the spring o' and pushes it down so as to interrupt contact between o' and r thus opening the circuit and preventing further ignitions until the speed has been again reduced to normal. When the engine is stopped, the governor goes to its lowest position, and the circuit is opened, the spring o being pushed up by the stud m^2 , and thereby disengaged from the pieces r .

In Fig. 2, A is the motive cylinder or combustion chamber. One terminal of the battery a, a, a is connected through the coil b to the fixed insulated contact piece B. I is a centrifugal governor controlling the supply of gas to the engine. A lever m is fulcrumed at m' and moved by the governor in the ordinary way. A lever s fulcrumed at s' upon an arm t extending from the governor stand, is so mounted above the lever m that it is not in contact with it when the latter is in a medium position. The lever s is held in normal state by resting upon an insulated contact piece t' also supported by the arm t of the stand. The other terminal of the battery is connected to the contact piece t' , and the current will flow from the battery through t' , lever s and arm t to the engine, thence through the wire connected to the contact B to the battery. The top of lever m is provided with lugs m^2 , m^3 , one at each side of the fulcrum m' and the under side of the lever s is furnished with similar and correspondingly situated lugs s^2 and s^3 . When the governor is at its lowest or highest position, the lug m^2 or m^3 by acting on the corresponding lug s^2 or s^3 of the lever s , lifts said lever, thereby breaking the contact at t' , and preventing further ignitions until the speed has been again reduced to normal and also when the engine is stopped and the governor is in its lowest position.

In both cases shown in Figs. 1 and 2 a prop

P serves for holding the governor in its middle position at the start so that the circuit of ignitor be closed. This prop is free to rotate on a horizontal axis and is overbalanced or top heavy so that it tilts into the position shown in dotted lines by itself as soon as engine gets up to speed, thus leaving the governor free to act in the manner described above.

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

15 1. In an electrical ignitor for a gas or hydro-carbon engine, a battery, an insulated contact piece, suitable wire connections between the battery, the engine and the insulated contact piece, combined with a movable device having metallic connection with the engine and engaging, in its normal position, the said
20 contact piece, and a pivoted lever operated by the engine governor in its extreme move-

ments to disengage said movable device from the said contact piece whereby the circuit is opened when the engine runs too fast or is stopped, substantially as and for the purpose 2 specified.

2. In an electrical ignitor for a gas or hydro-carbon engine, a motive cylinder, a generator of electricity, electrical connections, a governor and a lever having its fulcrum upon 3 the governor stand and provided with an insulated stud, combined with the springs *o*, *o'* and metallic pieces *p*, *p'* and *r*, substantially as and for the purposes set forth.

In testimony whereof I have hereunto subscribed my name, in the presence of two witnesses, on this 24th day of February, A. D. 1892.

PAUL A. N. WINAND.

Witnesses:

GEO. W. REED,
CHAS. C. COLLIER.