

L. E. WEGNER.
ELECTRIC IGNITER FOR EXPLOSIVE ENGINES.
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Fig. 1.

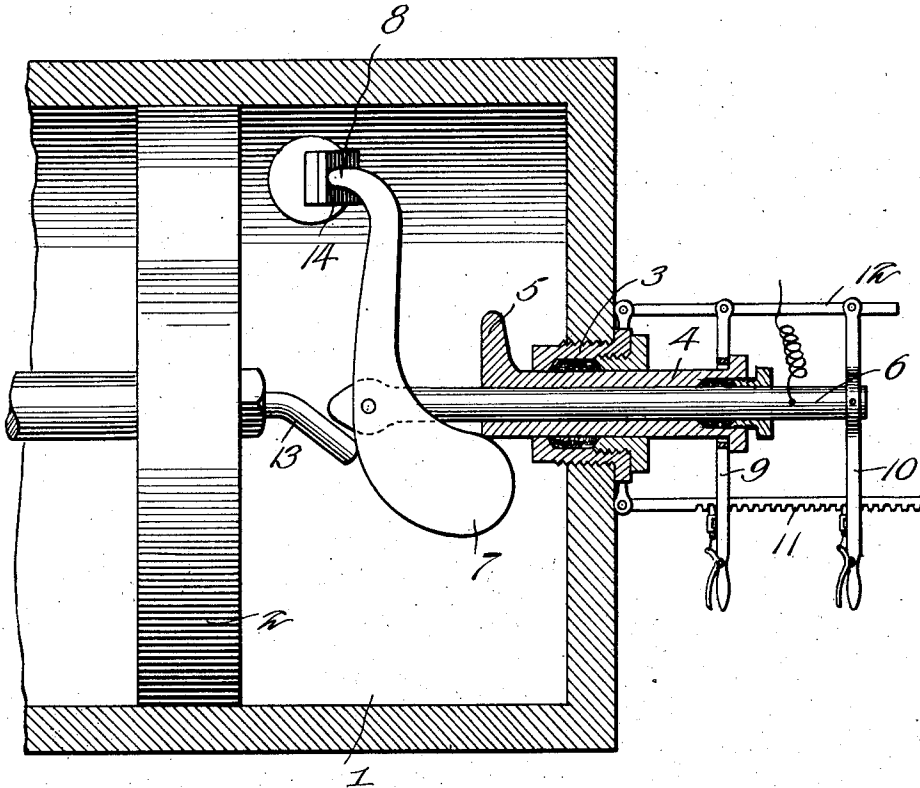
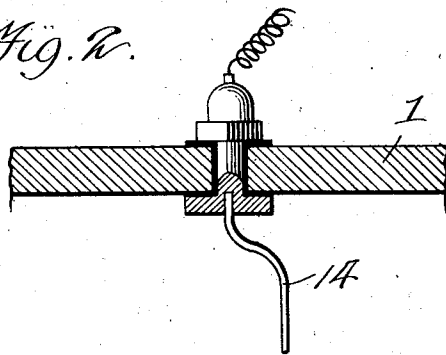


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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ELECTRIC IGNITER FOR EXPLOSIVE-ENGINES.

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To all whom it may concern:

Be it known that I, LEWIS E. WEGNER, a citizen of the United States, residing at Nebraska City, in the county of Otoe and State of Nebraska, have invented new and useful Improvements in Electric Igniters for Explosive-Engines, of which the following is a specification.

The present invention provides a novel mechanism for setting off the charge in the operation of gasoline or internal combustion engines, said mechanism being electrically operated and mechanically controlled directly by means of the piston and of such structure as to be adjusted to regulate the time of ignition and the parts being so arranged as to prevent back firing or premature ignition when cranking the engine to start the same.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawing, and pointed out in the appended claims.

Referring to the drawing, forming a part of the specification, Figure 1 is a sectional view of the explosion end of a cylinder of an internal combustion engine provided with igniting means embodying the invention. Fig. 2 is a detail section, showing the manner of mounting the fixed electrode in the cylinder.

The numeral 1 designates the cylinder of an internal combustion engine and 2 the piston arranged to operate therein. An opening is formed in the end of the cylinder and a stuffing box 3 is fitted thereto. A sleeve 4 is slidably mounted in the stuffing box and has a projection 5 at its inner end forming a stop. A stem 6 is slidable within the sleeve 4 and is provided at its inner end with a pivoted electrode 7, which is weighted at its lower end. The electrode 7 is approximately of elbow form and terminates in a curved point 8. The electrode is arranged to occupy an approximately vertical position. The stop 5 engages the upper portion of the pivoted electrode and normally holds the same in a given position. By relatively moving the sleeve 4 the position of the stop 5 may be changed, thereby varying the position of the electrode, with

the result that the spark may be retarded or advanced. A lever 9 is connected with the sleeve 4 to admit of adjustment thereof. A lever 10 is connected with the stem 6 to admit of moving said stem to advance or withdraw the electrode 7. The levers 9 and 10 are adapted to be held in the adjusted position by suitable means such as a toothed bar 11 and hand latches, the latter being of ordinary construction and provided upon the levers. A bar 12 supports the levers 9 and 10, the latter being pivoted thereto and said bar being movable or yieldable to prevent binding of the parts.

A trip 13 is attached to the piston 2 and strikes the electrode 7 at the proper time so as to explode the charge. By moving the stem 6 in or out the time of contact between the trip 13 and electrode 7 may be regulated. The electrode 7 has a loose pivot connection with the stem 6 so that when cranking the engine the same passes over the center before the electrode 7 is operated to produce the spark, thereby preventing premature ignition and back firing. When the engine is in full operation the trip 13 strikes the electrode 7 a smart blow, thereby throwing said electrode quickly, with the result that the spark may be produced in advance of the engine passing the center, which is desirable under certain conditions.

An electrode 14 is attached to the cylinder and consists of a spring, the same being inclined to the plane of movement of the pivoted electrode 7 so that when the point 8 of the electrode 7 strikes the inclined end of the spring electrode 14 the latter is pressed aside and instantly reacts to return the pivoted electrode to normal position. This rubbing or frictional engagement of the two contacts insures a clean surface and a positive sparking and prevents accumulation of any carbon or other deposits thereon.

In the operation of the igniter the position of the pivoted electrode 7 may be adjusted by movement of the sleeve 4 or adjustment of the stem 6. One wire of the electric circuit is connected to the stem 6 and the other wire has connection with the stem of the electrode 14. One or the other of the electrodes must be electrically insulated to prevent short circuiting and the other may be connected with the engine

structure, which latter may form a ground for the circuit in the usual manner. When the piston 2 advances on the compression stroke the electrode 7 is tripped at the proper time and coöperates with the electrode 14 to produce the spark whereby the gaseous mixture is ignited. The construction is such as to admit of the sparking mechanism being readily applied to any type of internal combustion engine in use, since no special timer common to each cylinder is necessary.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention what is claimed as new, is:—

1. In sparking mechanism for internal combustion engines, the combination of a pivoted electrode, a support therefor, means for adjusting the support to move the electrode to the required position, and an adjustable stop for limiting the movement of the pivoted electrode in one direction.

2. In sparking mechanism for internal combustion engines, the combination of a stem, an electrode pivotally mounted upon said stem, means for adjusting the stem and holding the same in an adjusted position, a sleeve mounted upon the stem and provided with a stop, and means for independently adjusting the sleeve to move the stop with reference to the electrode to fix the position of the latter.

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

LEWIS E. WEGNER.

Witnesses:

L. F. JACKSON,
RAY L. MILLAR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."