

C. SCHMIDT.
 CONTROLLER MECHANISM FOR EXPLOSION ENGINES.
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1,062,738.

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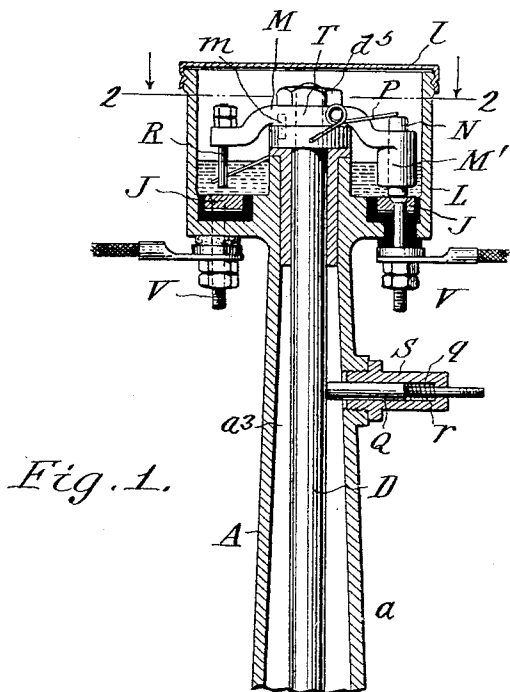


Fig. 1.

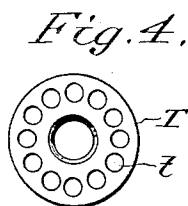


Fig. 4.

Fig. 2.

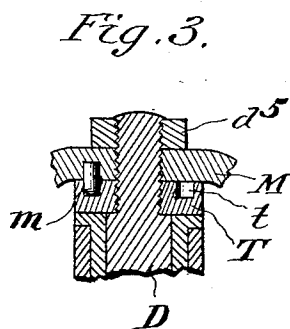
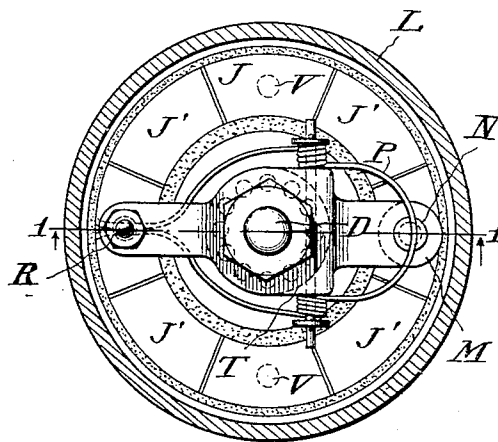


Fig. 3.



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CONTROLLER MECHANISM FOR EXPLOSION-ENGINES.

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Specification of Letters Patent.

Patented May 27, 1913.

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To all whom it may concern:

Be it known that I, CHARLES SCHMIDT, a citizen of the Republic of France, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Controller Mechanism for Explosion-Engines, of which the following is a full, clear, and exact description.

The electrical ignition system of an explosion engine ordinarily includes a primary circuit and its generator, an induction coil, a spark plug, and a controller for making and breaking the primary circuit at the proper times in respect to the position of the engine piston.

This invention is an improved circuit controller for such an ignition system.

The object of the invention is to simplify the construction, and to insure the performance of the functions of the controller, and to render it more durable.

The invention may be summarized as the combination of parts hereinafter described and definitely pointed out in the claims.

On the drawings 1 is a vertical central section on the line 1, 1 of Fig. 2 through the mechanism embodying the present invention, in the best form known to me. Fig. 2 is a plan view partly in section on line 2, 2 of Fig. 1 over the brush chamber. Fig. 3 is a central longitudinal section of the upper end of the controller shaft and adjacent parts. Fig. 4 is a plan view of a collar, which is secured onto the upper end of the upper controller shaft.

Referring to the parts by letters, A represents a casing which is in the form of a hollow column having an inner chamber a^3 and designed to be held in a vertical position as shown and affording bearing support for a shaft D. On the upper end of the column A is a casing cup L, which is open at the top; and a spring metal cap l is provided for closing this end. In the bottom of this cup the circuit-terminal plates J are secured, and insulated from each other and the casing. These terminal plates are arranged in a circle around the axis of the shaft D, which drives the controller through suitable connections from the shaft of the engine with which the device is associated. There are as many of these plates as required or desired, and there are as many binding posts V connected with equally

spaced terminal plates as there are engine cylinders to be served thereby. In the present case there are four of these binding posts V connected with four equally spaced terminal plates. The plates J' intermediate of those with which the binding posts are connected, are not included in any circuit, and might be made of insulated material if desired.

A brush carrying arm M is secured to the upper end of the shaft member D within this cup. This arm extends to both sides of the shaft, and in one end of said arm there is a tubular brush holder M' through which a brush N is movably held. A rat-trap spring P secured to the arm bears upon the top of the brush N and presses it down against the terminal plates. One end of this spring is connected with a vertically adjustable screw R carried by the other end of said arm, whereby, the tension of the spring may be varied.

It is necessary that the arm M be rigidly secured to the shaft section D, and that it be accurately positioned. To accomplish this result, a disk T is fixed to the upper end of said shaft section and this disk contains a plurality of holes t . In the arm M a pin m is fixed; and this pin may be inserted into any one of these holes,—and then this arm may be held down by a nut d^5 on the end of the shaft section.

In devices of this sort the secondary electric circuits are commonly "grounded" by being connected with metallic parts of the machine frame. In the present construction it is intended that the controller shaft D shall be electrically connected with the casing. It has been found, however, in analogous structures, that where the current has to pass through lubricated bearings the electrical connection is not very satisfactory. To provide an electrical connection between the shaft D and the casing, of such character that it does not include oiled surfaces, will greatly reduce the resistance; and with this end in view I have provided, upon the side of the casing, a screw threaded opening into which is screwed a guide casing S carrying a plunger Q and a spring r for pressing it inward. This plunger is made of metal, is included in the secondary circuit and bearing against the shaft section D serves to efficiently connect said shaft electrically with the casing A.

The cup-shaped upper end of the casing is a desirable structural characteristic, because it may be partly filled with oil, which will cover the terminal plates and the lower end of the brush. This will partly reduce sparking between the controller sections and the brush.

The central boss *d*, which forms the shaft bearing and is preferably cast integral with the receptacle and casing, is extended up into the receptacle to an elevation above the normal level of the body of oil in the receptacle thereby avoiding the necessity for any packing around the shaft to prevent leakage of the oil through the bearing and down the shaft.

Having described my invention, I claim:

1. In circuit controlling mechanism, the combination of a casing having a cup-shaped upper end, and an annular row of insulated terminal plates secured to the bottom of said cup, with a controller shaft mounted in the casing and projecting into the cup, an arm secured to the shaft within the cup, a brush movably mounted in one end of said arm, an adjusting screw-pin mounted in the other end of the arm, and a spring carried by said arm in engagement with the brush and with said pin.

2. In a circuit controlling mechanism, the combination of a casing standard having a

cup-shaped receptacle at its upper end which is adapted to hold a body of oil, an annular row of insulated terminal plates secured to the bottom of the receptacle, with a vertically disposed controller shaft, a contact arm secured on the shaft and adapted to make contact with the submerged surfaces of said terminal plates and a boss on the axis of the receptacle forming a bearing for the shaft and extending up into the receptacle above the normal surface level of the body of oil contained therein.

3. In circuit controlling mechanism, the combination of a casing having a cup-shaped upper end, and an annular row of insulated terminal plates secured in the bottom of said cup, with a controller shaft mounted in the casing and projecting into the cup, a disk secured to the end of the shaft within said cup and having an annular row of holes, a brush-carrying arm loosely embracing the shaft above said disk and having a pin fitting into the holes in said disk, and a nut screwing onto the end of said shaft against said arm.

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

CHARLES SCHMIDT.

Witnesses:

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J. M. WOODWARD.