

E. KUHN.
ELECTROMAGNETIC SPARKING PLUG.
APPLICATION FILED JULY 17, 1909.

971,544.

Patented Oct. 4, 1910.

FIG. 1

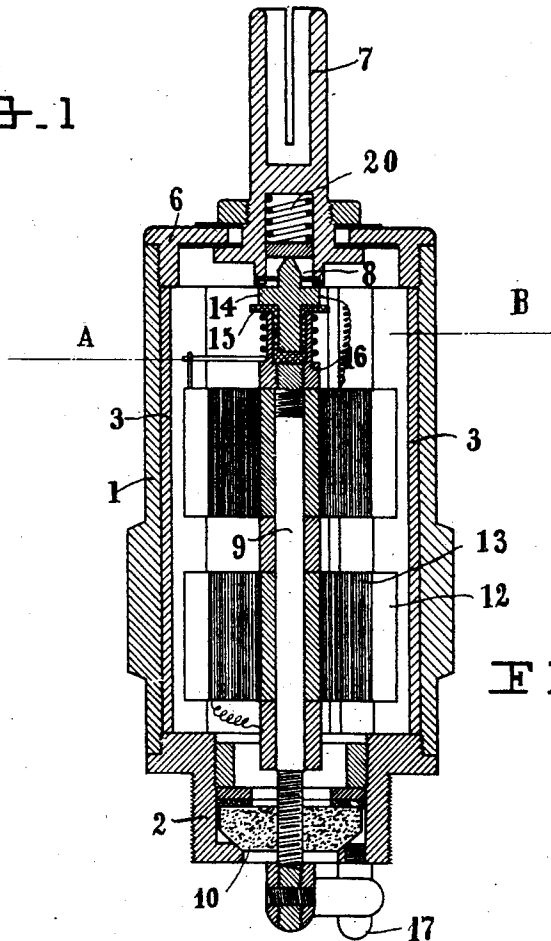


FIG. 3

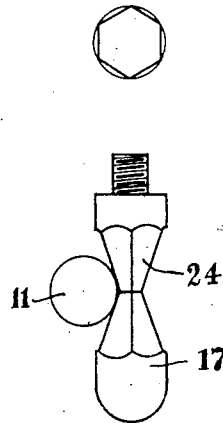
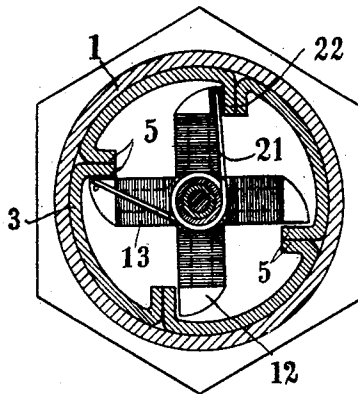


FIG. 2



Witnesses

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ELECTROMAGNETIC SPARKING PLUG.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EMIL KUHN, a citizen of the Swiss Confederation, residing at Krenzstrasse, Stäfa Ct., Zurich, Switzerland, have invented new and useful Improvements in Electromagnetic Sparking Plugs, of which the following is a specification.

This invention refers to an electro-magnetic sparking plug with coils arranged in a dust and gas tight casing and with a contact pin projecting into the explosion chamber and situated on a shaft rotatively arranged in the coil casing, which contact pin produces the sparking on the rotation of the said shaft.

Now the novelty of this invention consists in the arrangement of electro-magnets on the shaft provided with the contact pin, which contact pins are connected up to the one pole of a source of current, and in this that pole pieces are firmly fitted in the casing which is connected up to the other pole of the source of current, toward which polar pieces, on closing the circuit the electro-magnets are moved against the action of a spring and thereby occasion the formation of a spark. In order securely to pack the casing from the explosion chamber, the shaft provided with the contact pin is threaded and is arranged with this threaded portion in a soap-stone bearing.

I will now describe my invention with reference to the accompanying drawing showing one form of construction and in which:—

Figure 1. is a longitudinal section. Fig. 2. is a cross section in the line A—B of Fig. 1. Fig. 3. shows a detail.

Four polar pieces 3 are arranged in a casing 1 which is provided with a screw-thread 2 for screwing into the cylinder. These four polar pieces together form a circular ring with inwardly projecting flanges 5.

The casing 1 is closed by a screw cap 6 to which is fitted an insulated terminal 7. The terminal 7 is provided with a bearing 8 for a pin 14 on which is arranged a socket 15 of insulating material. On the latter is arranged a socket 16 which is screwed together with a shaft 9 supported in a soap-stone bearing 10. On the outside of the casing the shaft 9 is provided with a contact pin 11 which rests against a stop 17 of the sparking plug. The soap stone bearing 10

is provided with a fine screw thread as well as the portion of the shaft 9 situated therein so that on rotating the shaft 9 it is moved somewhat in an axial direction. Two 4 pole armatures 12 are arranged on the shaft 9 and each of which is provided with a coil 13. The winding of the coils is such that the armatures following each other in axial direction are of unlike poles, but in the rotary direction north and south poles alternate in pairs. The feeding of the current is effected from the terminal 7 through the spring 20 to the pivot 14 to which the wire of the coil is connected up. The armature is exposed to the action of a position spring 21, the one end of which rests against the armature and the other end of which rests against a polar piece. In order to avoid short circuiting, the one end of a spring is insulated by a glass plate 22.

The stop 17 is preferably constructed as shown in Fig. 3. The stop 17 is provided with a circular groove 24 with polygonal walls. This form of construction facilitates the formation of the spark; furthermore by turning the stop 17 a change of contact surfaces can always be easily effected.

I claim—

1. An electro-magnetic sparking plug, comprising a casing, a shaft arranged to turn within said casing, a plurality of electro-magnets arranged on said shaft, a plurality of stationary polar pieces arranged to line the interior of the said casing, each of the said polar pieces having inwardly extending flanges each flange of each polar piece abutting against a flange of the next adjacent piece, a contact pin arranged on said shaft, a stop with which said contact pin makes contact, and means for causing said contact pin to move toward said stop, substantially as described.

2. An electro-magnetic sparking plug, comprising a casing, a shaft arranged to turn within said casing, a plurality of electro-magnets arranged on said shaft, a plurality of stationary polar pieces arranged to line the interior of the said casing, each of the said polar pieces having inwardly extending flanges each flange of the polar pieces abutting against a flange of the next adjacent piece, an insulated terminal mounted in said casing, a pivot on which said shaft turns, electrical connections between said insulated terminal and said pivot, a contact pin arranged on said shaft, and a stop with

which said pin makes contact, substantially as described.

3. An electro-magnetic sparking plug, comprising a casing, a shaft arranged to turn within said casing, a plurality of electro-magnets arranged on said shaft, a plurality of stationary polar pieces arranged to line the interior of the said casing, each of the said polar pieces having inwardly extending flanges each flange of the polar pieces abutting against a flange of the next adjacent piece, an insulated terminal mounted in said casing, a pivot on which said shaft turns, electrical connections between said insulated terminal and said pivot, a soap-stone bearing for said shaft arranged in said casing, a contact pin arranged on said shaft, a stop mounted in said casing with which said pin makes contact, and a spring passing around said shaft and having one of its ends secured to said flanges for moving said contact pin toward said stop, substantially as described.

4. In an electro-magnetic sparking plug, a casing, a shaft arranged to turn within said casing, means for causing the oscillation of the shaft, a soap-stone bearing for said shaft arranged in said casing, said bearing

being screw-threaded, and said shaft being provided with a corresponding screw-threaded portion, substantially as described.

5. An electro-magnetic sparking plug, comprising a casing, a shaft arranged to turn within said casing, a plurality of electro-magnets arranged on said shaft, a plurality of stationary polar pieces arranged within the casing, and a contact pin arranged on said shaft, substantially as described.

6. An electro-magnetic sparking plug, comprising a casing, cap pieces for the upper and lower ends of said casing whereby a dust and gas tight casing is obtained, a shaft arranged to turn within said casing, a plurality of electro-magnets arranged on said shaft, a plurality of stationary polar pieces arranged within the casing, a contact pin arranged on said shaft, and a stop for engaging said contact pin, substantially as described.

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

EMIL KUHN.

Witnesses:

CARL CUBLER,
JOHANN BENZ.